

# **Your Special Baby:**

*Real*

## **Lamaze Prepared Childbirth**

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**Real Lamaze Prepared Childbirth**

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**Dedication**

I lovingly and happily dedicate this book to Ray whose sensitivity, intellect and good humor buoy me through life, and to Brian, Kevin and Heather who are my greatest source of daily pride and joy.

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## Introduction

Labor and birth is an important life-changing event. How labor is perceived prior to the event often effects how the event is experienced. Labor is a powerful, yet healthy, force.

Women must trust themselves, their bodies and their support people. They need to accept the work their bodies will do to accomplish the task of giving birth. The support people around the laboring woman, especially the coach, need to understand the work her body must do.

The baby is resilient and ready for the transition to extra-uterine life. Labor is a healthy process for the baby, stimulating the baby for independent respirations and other bodily functions. Unfortunately, “an almost exclusive focus on the physical aspects of birth has led to routine interventions and the loss of perspective of birth as a normal event”.

Sharron S. Homerick, Ph.D., ACCE.

“Labor is two people working together, mother and baby. A mother must yield to wherever her baby takes her in labor. Her work is hard and requires access to her own strength, and it is easy, because she can only follow her baby. There is no other choice. It is this combination of strength, and yielding that brings a woman through birth in a manner in which she is able to learn more about herself...” Gayle Peterson, MSSW, LCSW.

The course of a labor is greatly influenced by the mental preconditioning of a woman and her coach. During the course of this Lamaze class series, I will endeavor to equip you with the best knowledge and training possible to give you the tools necessary to cope with your labor.

Good luck, God bless you, and practice, practice, practice.

Stacy D. McCullough

## Fetal Development

### Week 1

The ovum (egg) becomes fertilized in the Fallopian Tube, divides, and travels down this tube to implant into the uterine lining.

Maternal Changes: The ovaries increase production of progesterone, the “pregnancy-maintaining” hormone.

### Week 2

The three primitive germ layers are formed-ectoderm, endoderm and mesoderm. These three layers will generate every organ and tissue in the baby’s body.

Maternal Changes: Period is missed.

### Weeks 3 and 4

Primitive body segments appear which will form the spine, brain and spinal cord.

Digestive tract, heart and blood circulation take shape. The embryo is 1/5” long.

Maternal Changes: The placenta is growing and covers 1/15<sup>th</sup> of the uterine interior.

Breast tenderness begins (for some women, this tenderness can begin as early as 1 or 2 weeks post-conception).

### Weeks 5 and 6

The heart starts pumping. Limb buds appear. Eyes begin taking shape. External ears are developing. Major divisions of the brain are discernable.

Maternal changes: There is an exchange of nutrients and oxygen across the placenta. The two circulations-maternal and fetal-remain completely separate.

### Weeks 7 and 8

The face is complete with eyes, nose, lips and tongue. Tiny muscles and bones have developed beneath the thin skin. The tiny heart beats about 120-160 beats per minute.

First movements start. The embryo is approximately 1 1/8” long and weighs about 1/3 oz.

Maternal Changes: The placenta covers approximately 1/3<sup>rd</sup> of the uterine lining.

### Weeks 9 and 10

The eyelids are formed and sealed shut. Blood cells and bone cells form. Gender can be determined. The embryo is now a fetus.

Maternal Changes: Maternal blood volume has increased by 30-40%.

### Weeks 11 and 12

The genitalia are fully formed. There is early organ functioning. The kidneys produce urine and the pancreas produces insulin. The lungs have developed and primitive breathing motions begin. The swallow reflex is developed. The fetus is approximately 3” long and weighs about 1 oz. The fetal heartbeat can easily be heard by a doppler.

Maternal Changes: The placenta is functionally mature: The woman experiences a 2-3 lb. weight gain (and so do the husbands sometimes!).

**Weeks 13 and 14**

Fetal blood vessels develop rapidly. Maturation of the musculoskeletal system has occurred. There is rudimentary control of the body by the nervous system.

Maternal Changes: The woman is beginning to “show” abdominally. She commonly adds approximately 3-5 lbs. in maternal weight gain.

**Weeks 15 and 16**

The fetus kicks. All fetal organs and structures are formed. The fetus weighs approximately 7 oz. and is about 6”-7” long.

Maternal Changes: The placenta is producing estrogen.

**Weeks 17 and 18**

Vernix-an oily, cream cheese-like coating covers the fetus’ skin in utero and protects it. Lanugo-a fine, downy hair covers the body and keeps the vernix on the skin. Eyebrows appear.

Maternal Changes: The woman experiences and additional 4-5 lb. weight gain.

**Weeks 19 and 20**

Eyelashes and eyebrows are developed as well as is hair on the fetus’ head. The fetus weighs approximately ½-1 lb. and is about 10”-12” long.

Maternal Changes: Colostrum is present in the breasts. The uterus is now at the level of the umbilicus (belly button). The placenta covers one-half of the uterine lining. There is approximately 2 cups (400 ml.) of amniotic fluid present in the amniotic sac.

**Weeks 21 and 22**

The skeleton is developing rapidly.

Maternal Changes: There is an additional 4-5 lb. weight gain.

**Weeks 23 and 24**

Eyelashes are formed. Fingernails now extend to the ends of the fingers. The fetus weighs approximately 27 oz. and is about 11”-14” long.

Maternal Changes: The mother can sense when the baby is awake.

**Weeks 25 and 26**

The fetus’ eyelids are open and close. He/she makes respiratory movements and can swallow. The fetus can also regulate its body temperature from its own hypothalamus but still depends upon maternal support.

Maternal Changes: There is an additional 4-5 lb. weight gain.

**Weeks 27 and 28**

The fetus is 2/3rds grown with its weight about double that at age 24 weeks. The fetus is approximately 14”-17” long.

Maternal Changes: The mother can detect fetal hiccups.

**Weeks 29 and 30**

Fat is being deposited under the fetal skin in order to insulate the fetus in preparation for the abrupt temperature changes which occur at birth.

Maternal Changes: There is an additional 4-6 lb. weight gain.

**Weeks 31 and 32**

The fetal skin is less red and wrinkled. Its lungs and digestive tract are almost fully mature. The bones of the head are soft and flexible. The fetus is approximately 16"-18" long.

Maternal Changes: The mother may have varying degrees of insomnia due to the fetus' activity.

**Weeks 33 through 36**

The fetus takes up most of the uterine space and its movements are restricted. Most fetus' turn into a vertex-head down-position during this time.

Maternal Changes: The placenta weight about 20 ozs.

**Weeks 37 through 40**

The fetus' fingernails may protrude beyond the ends of its fingers. The fetus weighs approximately 6-9 lbs. and measures about 18"-22" long. Maternal antibodies are transferred across the placenta to the baby providing protection for approximately 6 months.

Maternal Changes: There may be an additional weight gain of 2-6 lbs. The baby "drops", or descends, deeper into the mother's pelvis in preparation for labor and birth.

**The Danger Signs of Pregnancy**

If any one of these signs occur, call your doctor at once.

1. Increased, unusual thirst with reduced amounts of urine; or, no urination for a day despite normal fluid intake.
2. Severe nausea or vomiting (several times within an hour).
3. Chills and fever over 100.4F not accompanied by a common cold.
4. Vaginal bleeding (as opposed to the mucous plug expected after the 37<sup>th</sup> week of pregnancy).
5. Marked swelling in your face or hands, especially if very sudden.
6. A severe headache that doesn't let up; especially if it occurs in the second half of your pregnancy.
7. Dimness or blurring of your vision.

8. Severe stomach pain or cramps.
9. Painful urination, or burning when urinating.
10. Rupture of membranes, that is, leakage of fluid or a gush of fluid from the vagina.
11. Change in fetal movements from the 26<sup>th</sup> week of pregnancy or after. If detected, eat a small meal or drink a beverage high in natural sugar (i.e., orange juice, apple juice) then lie down on your left side for one hour. During that hour, count the number of fetal movements or kicks. If the movements or kicks are less than 5 in one hour, go to the hospital immediately for a fetal evaluation.

## **Pregnant Patient's Bill of Rights And Pregnant Patient's Responsibilities**

The International Childbirth Education Association (ICEA) is an interdisciplinary, volunteer organization representing groups and individuals who share a genuine interest in the goals of family-centered maternity care and education for the childbearing year.

ICEA constantly seeks to expand awareness of the rights and responsibilities of pregnant women and expectant parents. Most pregnant women are not aware of their rights or of the obstetrician's legal obligation to obtain their informed consent to treatment. The American College of Obstetricians and Gynecologists has made a commendable effort to clearly set forth the pregnant patient's right of informed consent in the following excerpts from pages 66 and 67 of its Standards for Obstetric-Gynecologic Services.

"It is important to note the distinction between "consent" and "informed consent". Many physicians, because they do not realize there is a difference, believe they are free from liability if the patient consents to treatment. This is not true. The physician may still be liable if the patient's consent was not informed. In addition, the usual consent obtained by a hospital does not in any way release the physician from his legal duty of obtaining an informed consent from his patient.

Most courts consider that the patient is "informed" if the following information is given:

- \* The process contemplated by the physician as treatment, including whether the treatment is new or unusual.
- \* The risks and hazards of the treatment.
- \* The chances for recovery after treatment.
- \* The necessity of the treatment.
- \* The feasibility of alternative methods of treatment.



One point on which courts do agree is that the explanations must be given in such a way that the patient understands them. A physician cannot claim as a defense that he explained the procedure to the patient when he knew the patient did not understand. The physician has a duty to act with due care under the circumstances; this means he must be sure the patient understands what she is told.

“It should be emphasized that the following reasons are not sufficient to justify failure to inform:

1. That the patient may prefer not to be told the unpleasant possibilities regarding the treatment.
2. That full disclosure might suggest infinite dangers to a patient with an active imagination, thereby causing her to refuse treatment.
3. That the patient, on learning the risks involved, might rationally decline treatment. The right to decline is the specific fundamental right protected by the informed consent doctrine.”

On the following pages ICEA sets forth the **Pregnant Patient’s Bill of Rights** along with the **Pregnant Patient’s Responsibilities**.

### **The Pregnant Patient’s Bill of Rights**

American parents are becoming increasingly aware that well-intentioned health professionals do not always have scientific data to support common American obstetrical practices and that many of these practices are carried out primarily because they are part of medical and hospital tradition. In the last forty years many artificial practices have been introduced which have changed childbirth from a physiological event to a very complicated medical procedure in which all kinds of drugs are used and procedures carried out, sometimes unnecessarily, and many of them potentially damaging for the baby and even for the mother. A growing body of research makes it alarmingly clear that every aspect of traditional American hospital care during labor and delivery must now be questioned as to its possible effect on the future well-being of both the obstetric patient and her unborn child.

One in every 35 children born in the United States today will eventually be diagnosed as retarded; in 75% of these cases there is no familial or genetic predisposing factor. One in every 10 to 17 children has been found to have some form of brain dysfunction or learning disability requiring special treatment. Such statistics are not confined to the lower socioeconomic group but cut across all segments of American society.

New concerns are being raised by childbearing women because no one knows what degree of oxygen depletion, head compression, or traction by forceps the unborn or newborn infant can tolerate before that child sustains permanent brain damage or dysfunction. The recent findings regarding the cancer-related drug diethylstilbestrol have alerted the public to the fact that neither the approval of a drug by the U.S. Food and Drug Administration nor the fact that a drug or medication is safe for the mother or her unborn child. In fact, the American Academy of Pediatrics’ Committee on Drugs has

recently stated that there is no drug, whether prescription or over-the-counter remedy, which has been proven safe for the unborn child.

The Pregnant Patient has the right to participate in decisions involving her well-being and that of her unborn child, unless there is a clear cut medical emergency that prevents her participation. In addition to the rights set forth in the American Hospital Association's "Patient's Bill of Rights" (which has also been adopted by the New York City Department of Health), the Pregnant Patient, because she represents TWO patients rather than one, should be recognized as having the additional rights listed below.

1. The Pregnant Patient has the right, prior to the administration of any drug, or procedure, to be informed by the health professional caring for her of any potential direct or indirect effects, risks or hazards to herself or her unborn or newborn infant which may result from the use of a drug or procedure prescribed for or administered to her during pregnancy, labor, birth or lactation.
2. The Pregnant Patient has the right, prior to the proposed therapy, to be informed, not only of the benefits, risks and hazards of the proposed therapy but also of know alternative therapy, such as available childbirth education classes which could help prepare the Pregnant Patient physically and mentally to cope with the discomfort of stress of pregnancy and the experience of childbirth, thereby reducing or eliminating her need for drugs and obstetric intervention. She should be offered such information early in her pregnancy in order that she may make a reasoned decision.
3. The Pregnant Patient has the right, prior to the administration of any drug, to be informed by the health professional who is prescribing or administering the drug to her that any drug which she receives during pregnancy, labor and birth, no matter how or when the drug is taken or administered, may adversely affect her unborn baby, directly or indirectly, and that there is no drug or chemical which has been proven safe for the unborn child.
4. The Pregnant Patient has the right, if Cesarean birth is anticipated, to be informed prior to the administration of any drug, and preferably prior to her hospitalization, that minimizing her and, in turn, her baby's intake of nonessential pre-operative medicine will benefit her baby.
5. The Pregnant Patient has the right, prior to the administration of a drug or procedure, to be informed of the areas of uncertainty if there is NO properly controlled follow-up research which has established the safety of the drug or procedure with regard to its direct and/or indirect effects on the physiological, mental and neurological development of the child exposed, via the mother, to the drug or procedure during pregnancy, labor, birth or lactation-(this would apply to virtually all drugs and the vast majority of obstetric procedures).

6. The Pregnant Patient has the right, prior to the administration of any drug, to be informed of the brand name and generic name of the drug in order that she may advise the health professional of any past adverse reaction to the drug.

7. The Pregnant Patient has the right, to determine for herself, without pressure from her attendant, whether she will accept the risks inherent in the proposed therapy or refuse a drug or procedure.

8. The Pregnant Patient has the right, to know the name and qualifications of the individual administering a medication or procedure to her during labor or birth.

9. The Pregnant Patient has the right, to be informed, prior to the administration of any procedure, whether that procedure is being administered to her for her or her baby's benefit (medically indicated) or as an elective procedure (for convenience, teaching purposes or research).

10. The Pregnant Patient has the right, to be accompanied during the stress of labor and birth by someone she cares for, and to whom she look for emotional comfort and encouragement.

11. The Pregnant Patient has the right, after appropriate medical consultation to choose a position for labor and for birth, which is least stressful to her baby and to herself.

12. The Obstetric Patient has the right, to have her baby cared for at her bedside if her baby is normal. And to feed her baby according to her baby's needs rather than according to the hospital regimen.

13. The Obstetric Patient has the right, to be informed in writing of the name of the person who actually delivered her baby and the professional qualifications of that person. This information should also be on the birth certificate.

14. The Obstetric Patient has the right, to be informed if there is any known or indicated aspect of her or her baby's care or condition which may cause her or her baby later difficulty or problems.

15. The Obstetric Patient has the right, to have her and her baby's hospital medical records complete, accurate and legible and to have their records, including Nurses' Notes, retained by the hospital until the child reaches at least the age of majority, or, alternatively, to have the records offered to her before they are destroyed.

16. The Obstetric Patient both during and after her hospital stay, has the right to have access to her complete hospital medical records, including Nurses' Notes, and to receive a copy upon payment of a reasonable fee and without incurring the expense of retaining an attorney.

It is the obstetric patient and her baby, not the health professional, who must sustain any trauma or injury resulting from the use of a drug or obstetric procedure. The observation of the rights listed above will not only permit the obstetric patient to participate in the decisions involving her and her baby's health care, but will help to protect the health professional and the hospital against litigation arising from resentment or misunderstanding on the part of the mother.

Prepared by Doris Haire, ICEA President 1970-72, ICEA Consultant 1982-83.

### **The Pregnant Patient's Responsibilities**

In addition to understand her rights the Pregnant Patient should also understand that she too has certain responsibilities. The Pregnant Patient's responsibilities include the following:

1. The Pregnant Patient is responsible for learning about the physical and psychological process of labor birth and postpartum recovery. The better informed expectant parents are the better they will be able to participate in decisions concerning the planning of their care.
2. The Pregnant Patient is responsible for learning what comprises good prenatal and intranatal care and for making an effort to obtain the best care possible.
3. Expectant Parents are responsible for knowing about those hospital policies and regulations which will affect their birth and postpartum experience.
4. The Pregnant Patient is responsible for arranging for a companion or support person (husband, mother, sister, friend, etc.) who will share in her plans for birth and who will accompany her during labor and birth experience.
5. The Pregnant Patient is responsible for making her preferences known clearly to the health professionals involved in her case in a courteous and cooperative manner and for making mutually agreed-upon arrangements regarding maternity care alternatives with her physician and hospital in advance of labor.
6. Expectant Parents are responsible for listening to their chosen physician or midwife with an open mind just as they expect him or her to listen openly to them.
7. Once they have agreed to a course of health care expectant parents are responsible, to the best of their ability for seeing that the program is carried out in consultation with others with whom they have made the agreement.
8. The Pregnant Patient is responsible for obtaining information in advance regarding the approximate cost of her obstetric and hospital care.

9. The Pregnant Patient who intends to change her physician or hospital is responsible for notifying all concerned, well in advance of the birth if possible and for informing both of her reasons for changing.

10. In all their interactions with medical and nursing personnel, the expectant parents should behave towards those caring for them with the same respect and consideration they themselves would like.

11. During the mother's hospital stay, the mother is responsible for learning about her and her baby's continuing care after discharge from the hospital.

12. After birth the parents should put into writing constructive comments and feelings of satisfaction and/or dissatisfaction with the care (nursing, medical and personal) they received. Good service to families in the future will be facilitated by those parents who take the time and responsibility to write letters expressing their feelings about the maternity care they received.

All the previous statements assume a normal birth and postpartum experience. Expectant parents should realize if complications develop in their case, there will be an increased need to trust the expertise of the physician and hospital staff they have chosen. However, if problems occur, the childbearing woman still retains her responsibility for making informed decisions about her care or treatment and that of her baby. If she is incapable of assuming that responsibility because of her physical condition, her previously authorized companion or support person should assume responsibility for making informed decisions on her behalf.

Prepared by Member of ICEA

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## **Sexual Intimacy: Pregnancy and Postpartum**

Conflicting information and interest levels often cause confusion as to what is or is not advisable for a couple's sexual relations during the pregnancy and postpartum periods. The following information is offered to clarify misinformation, and for the couple's consideration.

**DURING PREGNANCY**-Reasons to abstain from or to delay sexual intimacy:

A. Sexual intimacy may be prohibited due to an obstetrical problem such as threatened premature labor, vaginal bleeding, placenta previa or in the case of incompetent cervix with cerclage. Ask your physician to clarify what is forbidden. Orgasm may be prohibited because, however it is achieved, it causes the release of hormones which stimulate uterine contractions. Semen may be contraindicated in the vagina because semen contains prostaglandins which are hormones that stimulate labor.

B. Emotional or physical fatigue or discomfort may temporarily delay sexual intimacy. This requires open and continuing communication between the partners, and creativity when usual methods of lovemaking are no longer practical.

C. The possibility of infection, as when the amniotic membranes have ruptured, may contraindicate sexual intercourse.

**POSTPARTUM**-Reasons to abstain from or to delay sexual intimacy:

A. The possibility of infection until the placental site heals usually dictates abstinence from conventional intercourse. The placental site is considered healed when the lochia (bloody vaginal discharge after birth) has ceased, approximately 3 to 4 weeks after birth. There is also a possibility of infection to the episiotomy site until it has healed, although only for a few days to a week after the birth.

B. Pain from the episiotomy site or vaginal repairs dictate caution and gentleness when resuming intercourse. Also, the Bartholin's glands in the vagina have temporarily decreased their production of vaginal lubricant requiring an artificial source of lubrication for intercourse such as water soluble K-Y Jelly (no Vaseline!) or the use of a condom with contraceptive foam.

C. There may be pain from unrepaired vaginal lacerations. There may be minor lacerations in the vaginal vault left unrepaired due to the possibility of increased trauma to the vaginal tissues from the repair. These tears will heal by themselves but, again, dictate caution and gentleness.

D. Fatigue may make a partner unwilling to engage in intercourse. Some time away from the baby should restore some equilibrium and enjoyment to the relationship.

Aside from these few stated reasons to abstain from or to delay sexual intimacy in a relationship, intercourse should be continued as it reduces tension in a familiar way, it reaffirms one's desirability as a sexual partner, and it fosters the hormonal climate which allows a quicker return of the uterus to the pre-pregnant state. Love-making also gives one a sense of being loved and secure, and a sense of physical health. So enjoy!

## **Full-Term Pregnancy Weight Gain During Pregnancy**

The total number of pounds that women normally gain during pregnancy is highly variable. Rather than an emphasis on the total number of pounds gained, a woman should be concerned with meeting three basic goals:

1. Weight gain should provide the necessary nutrients for the growth of a healthy, well-developed baby.

2. Weight gain should be adequate enough to allow the woman to remain healthy and should not drain her stores of nutrients.

3. Food eaten to provide the calories for weight gain should be very nutritious. The scale does not reveal whether each pound gained was from nutritious foods or from doughnuts, French fries and sodas.

### **Weight Gain Recommendations**

Current weight gain recommendations take into account the following:

1. The woman's weight at the time of conception.
2. The adequacy of the woman's diet at the time of conception.
3. The number of babies the woman is carrying.

For a woman of adequate weight and nutrient stores at the time of conception, the weight gain pattern may be as follows:

- |                     |                    |
|---------------------|--------------------|
| 1. First Trimester  | 2-10 pounds total  |
| 2. Second Trimester | ½-1 pound per week |
| 3. Third Trimester  | ¾-1 pound per week |

Recommended weight gains are as follows:

- |                                      |                           |
|--------------------------------------|---------------------------|
| 1. Normal weight women               | 25-35 pounds              |
| 2. Underweight women                 | 25-40 pounds              |
| 3. Overweight women                  | At least 24 pounds        |
| 4. Obese women                       | Check with your physician |
| 5. Previous poor diet women          | 25-35 pounds              |
| 6. Women carrying more than one baby | 40-60 pounds              |

### Weight Gain Components

There are eight different components that make up the total weight gain of pregnancy. The amount of weight gained in each component varies from woman to woman. The figures below represent the averages from a large sampling of women.

Component	Pounds
Baby	6-9
Placenta	1.5
Amniotic Fluid	2
Uterus	2-2.5
Breasts	2-4
Blood (maternal)	3.5-4
Tissue Fluids (Water Retention) (can be as much as 10#)	3
Maternal Reserves (Fat Protein)	<u>5-9</u>
TOTAL	25-35 pounds

“Regardless of how much women weigh before they become pregnant, gaining between 26 to 35 pounds during pregnancy can improve the outcome of pregnancy and reduce their chances for having the pregnancy end in fetal death.” (ACOG Newsletter, 1986).

The weight of the fetus at birth is due to many factors including:

1. Maternal health prior to conception
2. Maternal nutrition and eating habits prior to conception
3. Maternal nutrition and eating habits during the pregnancy
4. Maternal health habits such as smoking, alcohol ingestion, drugs or medications taken, etc.
5. Maternal age
6. Parity (number of deliveries a woman has had).
7. Placental sufficiency
8. Maternal weight during pregnancy

**REMEMBER!** There is no class you can take, no book you can read, no video you can watch, no exercise you can participate in, that can take the place of a healthy diet in pregnancy. The pregnant woman’s diet directly affects the health of the developing fetus. Nutritious foods are building blocks of better babies!



## Recommended Daily Food Guide

When a woman is pregnant or breastfeeding, her baby obtains its nourishment from the mother's diet, meal by meal. In pregnancy, the placenta does not have the ability to rob the maternal stores of nutrients for the developing fetus. Following is a review of the nutritional requirements of pregnancy (and lactation):

### Daily Food Guide

Food Group	Number of Servings		
	Non-Pregnant	Pregnant	Lactating
Protein Foods	3	4	4
Milk and Milk Products	3	4	5
Grains and Cereals	3	3	3
Leafy Green Vegetables	2	2	2
Vitamin-C Rich Fruits And Vegetables	1	1	1
Other Fruits & Vegetables	1	1	1

(For a list of foods in each of the above categories, please see "Food Groups" in Addendum.)

### Vitamins, Minerals and Folic Acid

The increased requirements for vitamins during pregnancy can usually be supplied by a well-rounded diet that provides adequate calories and amounts of proteins, including protein from animal sources. The Committee on Maternal Nutrition of the National Research Council states that in the majority of cases regular vitamin and mineral supplementation to pregnant women is of questionable value except for iron and folic acid supplementation. In other words, vitamin supplements should not be considered by the pregnant woman as substitute for food ingestion.

Folic acid is now recognized as an essential component in the woman's diet prior to conception to prevent NTD's (neural tube defects).

## Prenatal Exercise for Body Toning

Prenatal exercises are intended for toning and conditioning purposes only to prepare the pregnant woman for the rigors of her labor and delivery experience. These exercises should be done daily during the last trimester and can be done alone or with the aid of the coach. Always take a cleansing breath (deep inhalation in through the nose, exhalation out through the mouth) before beginning and after finishing each exercise.

**Exercises****Tailor Press****Method:**

Sit on the floor. Pull feet with soles together as near your body as is comfortable. Press knees gently toward the floor without bouncing. Repeat 5X.

If this exercise is easy for you, i.e., if your feet are against your body and your knees are touching the floor, then do the following: Sit on the floor with legs stretched well apart. Turn knees out and lean your body forward bouncing your upper body gently. Keep your back straight. Repeat 5X.

**Purpose:**

Stretches the muscles of the pelvic floor and inner thighs.

**Pelvic Rocks****Method:**

Lie on your back with your knees bent and feet flat on the floor. Press your back and shoulders firmly against the floor. Contract your abdominal muscles and press the small of your back to the floor. You will feel the pelvis rock upward. Release. Repeat 5-10X.

This exercise can also be done standing with your back against a wall while rocking your pelvis and pushing the small of your back against the wall. Another comfortable method of doing pelvic rocks is in the hands and knees position. In this position, start with your back straight, then pull the pelvis inward and out while not arching your upper back.

**Purpose:**

Improves posture and relieves backache. (In the hands and knees position, it also brings the uterus forward allowing better circulation in the area.)

**Knee Reaches****Method:**

Lie on your back with your knees bent and feet flat on the floor. Lift your head off the ground and reach toward the outside of one knee with the opposite arm (i.e., reach with the right hand to the outside of the left knee, and visa versa). Lie back down. (This is a diagonal reach that exercises mainly the oblique muscles). Repeat 5X to each side.

If you should feel light-headed while on your back, just turn to your left side until you feel better.

**Purpose:**

Abdominal muscle toning and improved circulation.

**Leg Raises****Method:**

Lie on your back with your knees bent and feet flat on the floor. Straighten one leg vertically upward. Slowly lower this leg with the knee as straight as possible until the leg is horizontal to the floor but not touching the floor as yet. Hold the leg parallel to the floor for a moment, then return it to the bent position with the foot flat on the floor. Repeat 5X with each leg.

**Purpose:**

Abdominal muscle toning and improved circulation in the legs and pelvis.

**Butterfly****Method:**

Sit on the floor in the tailor sit position. Place arms with hands crossed on the floor in front of you. As you inhale slowly, raise your arms straight up over your head, making sure that your upper arms brush over the breasts as they go. As you exhale slowly, lower both arms back behind you so that your fingertips touch the floor. Clasp your fingertips as you inhale again slowly. Move your hands with fingers clasped behind you up and down a short distance three times. Be careful to keep the hands near the floor so the stretch is in the chest muscles and not in the shoulders. As you exhale slowly, bring the hands around in front of you and return them to the starting position. Repeat 5-10X.

**Purpose:**

Improved circulation in the chest area and arms. Expansion of the rib cage can relieve some symptoms of shortness of breath and/or heartburn.

**Blowing Out The Candle****Method:**

Sit tailor style on the floor. Take in a large cleansing breath through the nose, then blow out slowly through pursed lips as though you are trying to flicker a candle flame 12" from your mouth. Continue to blow out until you feel at least the abdominal muscles pulling in. When you feel as though you are running out of air, you still have residual air volume so you may be able to continue exhaling a bit more. With increased exhalation, you not only feel the muscles pulling, you may also feel them quivering or shaking, indicating an increased tightening of the muscles. When your exhalation is complete, take in one or two quick cleansing breaths to prevent hyperventilation. Repeat 5-10X.

**Purpose:**

Abdominal muscle toning in preparation for expulsive pushing during second stage labor.

**Foot Circles****Method:**

Sit on the floor with both legs out straight in front of you. Use your arms to support yourself. Place one ankle on top of the other (e.g., place the right ankle over the left ankle). With the top foot, make circular movements with the toes so that the rotation is

all within the ankle. Start going outward first, then reverse the direction. Change legs and repeat with the opposite foot. Repeat 5-10X with each foot in each direction.

**Purpose:**

Improves circulation and muscle stretching to help prevent or alleviate muscle cramps.

**Kegels****Method:**

The Kegels, or pelvic floor muscles, are the muscles which surround the urethra, vagina and rectum. When these muscles are contracted, the feeling is similar to having urinary urgency and needing to stop the flow of urine by tightening the pelvic floor muscles. As an exercise, visualize the Kegel muscles as an elevator going up 4 floors and contract the pelvic floor muscles slowly from the first floor and hold it, to the second floor and hold it, to the third floor and hold it, and to the fourth floor and hold it. Then release in a similar, slow and step-wise manner, until the pelvic floor muscles are at complete rest or relaxation. Repeat this exercise 10 at a time, at least 10 different times during a day (=100/day).

**Purpose:**

Control of this muscle group is helpful during second stage labor (pushing or expulsive stage), for improving circulation and aiding healing to the episotomy site, and for general muscle tone. Kegel exercises may also improve sexual feeling during intercourse, and can reduce the incidence of pelvic floor muscle relaxation leading to prolapsed bladder and/or prolapsed uterus in later years.

## Communication Skills

The Lamaze Method requires teamwork. Honest and open communication between yourself and your caregiver is essential. You should feel free to ask questions and to make certain that you understand the explanations given. Below are some tips to help you communicate more effectively with your primary caregiver.

1. Think of yourself as a consumer. You are purchasing a service-maternity care. Your doctor or midwife is your consultant. You have hired him/her to oversee your pregnancy and birth, and to provide medical expertise should a problem arise.
2. Keep in mind that childbirth is usually a normal, healthy process and that most women require little intervention to have a safe delivery and a healthy baby.
3. Ask questions and be sure that you are satisfied with, and understand, the explanations offered.
4. If possible, the coach should attend most prenatal appointments to develop a rapport with the doctor or midwife, and to provide moral support for the pregnant woman.

5. Listen to how you sound when you speak to your doctor or midwife. Are you hesitant, or do you make your feelings clear? Use a written list. Always ask your questions fully clothed and sitting across the desk from your doctor or midwife in his/her office to put you both on an equal, adult level.

6. Be assertive rather than aggressive or passive. (being assertive means standing up for your rights without violating the rights of others.) “I want...” may not be the best way to approach a subject. Phrases such as “I would like to better understand \_\_\_\_\_.” Or “I’ve heard about \_\_\_\_\_. Can you tell me more about it?” will probably elicit the information you desire without being potentially offensive to the other person. Doctors and nurses are people, too, and appreciate being approached in the same way that you would like to be treated.

7. Assume that people have your best interest at heart, but don’t assume that they know what you want. Prepare your “Birth Plan” and discuss it with your doctor or midwife before you enter the hospital in labor.

8. Ask to meet with the physicians or midwives that would become involved in your labor and delivery in the event of your primary caregiver’s absence. Try to ascertain their attitudes and review your “Birth Plan” with them, also. Ask them to honor what has already been agreed to.

9. Expect what you have planned for but remain flexible too.

## **Labor Coping Strategies**

Labor and birth are important life-changing events in a woman’s, and a couple’s life. How labor is perceived prior to the event often affects how the event is experienced. Labor is a powerful, yet healthy, force. Labor is mostly commonly a normal physiological event.

A woman’s ability to cope with labor is influenced by a great number of factors including the following:

### **Psychological Preconditioning**

- Self Trust
- Attitudes toward “pain” and “blood”
- Cultural Expectations
- Shared life experiences

### **Physiological Influences**

- Fear-Tension Pain Syndrome
- Stress leading to the “Fight-or-Flight” Syndrome
- Endorphins
- The Gate-Control Theory and Lamaze techniques

Left and right brain stimulation

### **Labor Coping Strategies**

Personal Attitude and Self Trust

Visualization

Positive Affirmations

Relaxation Skills

    Progressive Relaxation

    Neuromuscular Control Relaxation and Feedback

    Massage and Effleurage

    Focal Point or Attention Focusing

    Music

Lamaze Breathing Techniques

Coach Support and Input

Staff Support and Input

Environmental Considerations

### **Psychological Preconditioning**

#### **Self Trust**

Individuals with a sense of self-esteem and the attitude of “I’m OK and I like who I am,” are known to generally handle life’s stresses better than individuals who don’t feel good about themselves. A woman who likes herself will cope better with the intensity of labor than a woman who feels that she is not a worthwhile person. Psychologists teach that you can alter your perception of yourself by self-talk, such as, “I am OK and I like who I am. I can cope with labor and its stresses.....” This self-talk must be practiced daily and for several weeks before one’s mind begins to change its perception of one’s worthiness. But it can be done.

#### **Attitudes Toward “Pain” and “Blood”**

Most people entering childbirth classes fear the expected pain of labor and the probability of seeing blood. These two events should be welcomed, however, as they are useful indicators of progress of labor.

Strong contractions accomplish the work of opening the cervix so that the baby may be pushed out into the world. Although, once achieved, active labor with its forceful contractions is strong and can be painful; these contractions more efficiently dilate the cervix than a series of moderate and more tolerable contractions. Strong, active labor should, therefore, be welcomed as a sign of progress.

Bloody show is also a sign of progress and is a normal part of labor. As the woman dilates, she has a small amount of bloody vaginal discharge. This bleeding is not a result of injury but, rather, is directly due to advancing cervical dilation. Both the “pain” of labor and the “blood” of labor should be seen as welcome signs of progress.

**Cultural Expectations**

Most women give birth according to the culture (the arts, beliefs and customs that make up a way of life for a group of people at a certain time) which they are accustomed to. For many of us, our cultural way of giving birth is to go to a hospital to be attended to by a professional staff. Our coach may be allowed to be present but not our extended family or friends. We may never have attended a birth ourselves. Despite our attempts to educate ourselves on the process of birth, it still remains somewhat shrouded in secrecy and mystery.

For other women in other cultures, they may go to a special birthing place and be attended to by other women-relatives and/or friends-until the birth is accomplished. Or the women of the group may come to the birthing woman's home and attend to her there until she gives birth. Or the laboring woman may go off alone until the birth is accomplished

However one chooses to give birth, it is known that we cope better with that which is known and familiar, than with that which is unknown and uncertain.

**Shared Life Experiences**

Most women remember the duration and the intensity of their labors. Their perspective of the event, however, is oftentimes skewed. A woman may have had an 18 hour labor of which only the last 4 hours involved active labor and intense contractions. When this woman recounts her labor experience, she will tell you the labor lasted 18 hours and then proceed to tell you how intense the labor was without clarifying that only the last few hours were difficult. Frequently, these labor stories become embellished, making them more dramatic than they actually were. These kinds of stories are not helpful to the prospective mother who still has her own labor and delivery to look forward to.

**Physiological Influences****Fear-Tension-Pain Syndrome**

The Fear-Tension-Pain Syndrome teaches that when a woman in labor gives in to fear, either through a lack of knowledge or misinformation, she unconsciously tenses her muscles as a response to her fears. Tense muscles constrict, or reduce, blood flow through the blood vessels thereby reducing oxygen delivery to the muscles. Muscles in a state of low oxygenation feel pain more acutely. The ability to maintain relaxation, therefore, is very important as it allows unrestricted blood flow and oxygen delivery to the muscles which prevents an increased sense of pain due to tension.

The most important muscle to maintain good blood and oxygen flow to during labor is the uterus. This can be accomplished by mastering the relaxation techniques prior to labor, and by using them during labor to maintain relaxation and optimal blood flow to all of the muscles.

**Endorphins (Enkephalins)**

Endorphins are the body's natural morphine, or pain killers. They are secreted from the brain. With the initial introduction of a stressor, such as labor, there is an increased

secretion of endorphins from the hypothalamus. A continuing, chronic stress response can deplete the endorphin secretion level thereby negating its beneficial effect. If an individual's response to a stressor is one of control and relaxation, however, then the initially increased endorphin level may be maintained.

There is speculation from recent research, as well, that massage may facilitate and stimulate the brain's ability to produce endorphins.

### **The Gate-Control Theory**

The Gate-Control Theory proposes that there is a gating mechanism involved in the transmission of pain impulses to the cerebral cortex area of the brain (level of awareness). Pain from the contracting uterus travels to the brain along small diameter nerve fibers. Messages relayed along small diameter nerve fibers travel to the brain more slowly than messages relayed along large diameter nerve fibers. It has been demonstrated that large diameter nerve fibers are stimulated by touching, massage and rubbing. Stimulation of the large diameter nerve fibers can become the primary signal to the cerebral cortex when coupled with concentration on a focal point, relaxation skills and a patterned breathing style. Once the cerebral cortex area of the brain has received its primary message (massage, focal point, relaxation, patterned breathing), a "gate" closes to prevent other impulses from being interpreted as the primary message. Other messages attempting to enter the cerebral cortex are then regulated to a secondary position and are, therefore, less focused upon.

The following factors affect the "gate":

- |   |  |
|---|--|
| <p>A decreased interpretation of the intensity of pain, or no sensation of pain, results from closing the "gate" by:</p>  | <p>Pain is recognized when the "gate" is opened by:</p>  |
| <p>a. A stimulation of the activity in the fast moving, large diameter nerve fibers such as that caused by skin stimulation (massage, touching or effleurage).</p>  | <p>a. Activity in the slow moving small diameter nerve fibers is allowed to be the primary signal, as with tissue injury.</p>  |
| <p>b. Inhibitory impulses from the brainstem These are caused when there is sufficient sensory input arriving by way of distraction (counting, breathing patterns, mental picturing, etc.)</p>                              | <p>b. Facilitory impulses from the brainstem. This is when there is distraction from a monotonous environment.</p>   |
| <p>c. Inhibitory impulses from the cerebral cortex and thalamus. This is anxiety reduction based upon education, such as learning when the pain will end and how to relieve it (labor coping strategies and education).</p> | <p>c. Facilitory impulses from the cerebral cortex and thalamus. This is a primal fear, oftentimes accompanied by a lack of knowledge or education, that the intensity of pain will escalate and</p> |



will be associated with injury and/or death.

### **Left and Right Brain Stimulation**

Recent research indicated that if both hemispheres of the brain can be stimulated simultaneously, than the brain's ability to interpret a painful or noxious stimulus is reduced. Left brain stimulating functions in a Lamaze childbirth class include the reception of factual information, processing the information and acting upon it. A right brain stimulating function is the regular inclusion of some favorite music during the practice of one's Lamaze labor coping skills (focal point, relaxation, patterned breathing, massage, etc.) The practical application of this theory is for the laboring woman to employ the labor coping techniques of her choice (a rational, logical, left brain stimulating function) combined with soothing music playing in her laboring environment (a right brain stimulating function).

#### **Left Brain Characteristics**

Alert  
Logical  
Rational  
Analytical  
Verbal  
Temporal  
Aggressive

#### **Right Brain Characteristics**

Spatial  
Intuitive  
Non-rational  
Feeling  
Non-verbal  
Non-temporal  
Holistic

### **Labor Coping Strategies**

#### **Personal Attitude and Self Trust**

The course of labor is greatly influenced by the mental preconditioning of the pregnant woman. Each woman may choose to believe sensationalized and usually distorted media presentations of birth, and embellished personal accounts of others. Or each woman may choose to trust in her own personal strengths, the coping strategies she has learned, and in her ability to access the numerous mechanisms that are naturally in place to help her cope with the intensity of labor. Ultimately, the choice is each woman's to make.

#### **Visualization**

"Imagery (visualization) is really a form of daydreaming with direction and purpose. It is a conscious experience in which an individual is able to maintain a focus on one object of concentration through involving perceptual and emotional participation" (Sandra Steffes). Visualization, used as a tool in childbirth preparation, allows the laboring woman to mentally focus on a positive image. This focusing of her mental attention can decrease the woman's perception of pain and improve her coping abilities. Guided imagery and visualization have been used successfully in clinical settings to improve vision, to relieve intractable pain, and to restructure negative images surrounding the childbirth experience.

Following is a sample visualization script that the pregnant woman and her coach may practice on a regular basis until the woman goes into labor. Before beginning the practice, the woman should be resting comfortably with all parts of her body supported. There should be soothing, relaxing music playing in the background and the room should be darkened. With calm, clear tones, the coach may say the following:

“Relax your body.

Your mind is calm and clear.

Your breathing is slow and even.

You can visualize easily and with great clarity.

Your mind is a screen and you can see any picture you wish.

Picture yourself \_\_\_\_\_ (Choose a favorite scene such as at the beach, the mountains, taking a warm bath, sailing, etc. Describe the scene.)

Be aware of the details.

Be aware of the senses (warm, gentle rocking, etc.).

Look closer at the details.

Now see yourself in the picture and be descriptive (on a towel at the beach; walking on a flower-bordered mountain path; luxuriating in a warm bath; gently bobbing over the waves in your sailboat; etc.).

Be aware of your senses. Look at the scenery. Be aware of the smells and of the sounds. Is there a breeze? (Take time with this part to explore the positive and restful parts of the “picture”.) You are leaving \_\_\_\_\_ and returning slowly to the present.

Move your right arm slowly. Now move your left arm slowly.

Open your eyes when you are ready.

Maintain your calm, relaxed state and remember it.

Know that you may return to your special place any time that you wish”.

### **Positive Affirmations**

Positive affirmations can be either pleasant, helpful and positive thoughts by the woman, or similar statements made to her by her coach. Affirmations can help a woman maintain a positive frame of mind which can significantly and positively affect her response to the activity and intensity of labor.

During labor woman can hear, accept and process positive directions or comments. Negative comments, such as “Don’t tense,” require mental processing to be understood, analyzed and acted upon. This can be an increased mental burden for the actively laboring woman. She may reject these comments because they are temporarily perceived to be annoying and/or confusing.

Examples of positive affirmations are as follows:

The woman may say to herself:

1. I am calm and relaxed
2. My breathing is slow and even

The coach may say to the woman:

1. You are calm and relaxed
2. Your breathing is slow and even

- |  |  |
|--|--|
| 3. My baby fits perfectly into my pelvis | 3. You are concentrating well                        |
| 4. My cervix is dilating well            | 4. Your cervix is dilating well                      |
| 5. I am in control                       | 5. You are in control                                |
|  | 6. Relax your fingers...your back..<br>your arms ... |
|  | 7. You are wonderful                                 |

### **Relaxation Skills**

#### **Progressive Relaxation**

Progressive relaxation is a basic tension-relaxation exercise where one's goal is to tense a muscle and be aware of the tension and what it feels like, and then to relax the muscle and focus on what each muscle feels like when completely relaxed. This increased level of awareness of the state of tension or relaxation in the muscles is the foundation for progressing to the next level of relaxation. For a complete "Progressive Relaxation" exercise and practice script, see the Addendum.

#### **Neuromuscular Control Relaxation and Feedback**

It is well understood that when one muscle group of the body tenses, additional muscles groups surrounding that area tend to also tense causing additional discomfort and decreased perfusion and oxygenation to the area. Neuromuscular Control Relaxation teaches the learner that one muscle group may be isolated as it is tensed, while surrounding muscle groups can remain in a relaxed state. In labor, this skill is translated into the woman's ability to maintain surrounding muscle groups in a relaxed state while the uterus continues to contract involuntarily.

This N-M Control Relaxation skill needs to be practiced regularly until the woman actually goes into labor. When practicing, the following rules should be remembered:

1. Practice in a quiet environment.
2. Have pleasant, soothing music softly playing in the background.
3. Assume a comfortable position with all parts of the woman's body supported and relaxed.
4. Have a mental device, which means to focus on the relaxed state of the muscles.

A sample script for the coach may go as follows:

1. The coach may say "Contract your left arm." The coach now checks each of the woman's major muscle groups from head to toe for relaxation and

encourages additional relaxation with comments such as “Your jaw is relaxed,” or “Your right arm is heavy,” or “Relax your back,” and so on. When the coach has completed the check, the coach instructs the woman to “Relax your left arm.”

2. “Contract your jaw.” The coach again checks the woman’s other major muscle groups for relaxation. The coach then instructs the woman to “Relax your jaw.”
3. “Contract your right leg.” (with the toes pointed up, not forward, so as to avoid a cramp). The coach checks the woman for relaxation and then instructs her to “Relax your right leg.”
4. Continue this practice by naming each of the major muscles one at a time, having the woman tense one, access the other major muscle groups for relaxation, encourage additional relaxation, and then have the woman release the muscle previously tensed.

### **Massage and Effleurage**

Massage has the potential for providing comfort and for restoring a sense of well-being. Massage facilitates venous (blood) and lymphatic flow, and tissue stretching from stimulation of skin and pressure receptors. Touching and rubbing stimulate the fast-moving afferent neurons (nerves) which, in turn, inhibit the conduction of pain impulses to the spinal cord from the slower-moving efferent neurons from the uterus. Massage can exert an analgesic (pain-reducing) effect as recent research suggests that it may facilitate the production of endorphins.

Effleurage is a form of massage which provides a controlled focus on concentration. Most often, effleurage is practiced as a rhythmic abdominal massage in synchrony with the patterned breathing styles of the woman in labor. As the hands massage in a double-circular manner around the enlarged abdomen, it is easy to visualize that one is drawing a heart shape around the baby. Effleurage complements breathing and relaxation skills. It, too, stimulates the fast-moving afferent neurons.

Following are some considerations for effective cutaneous (skin) stimulation by use of massage or effleurage:

**Attitude**-An essential component of effective therapy using massage or effleurage is the coach’s desire to help or be helpful.

**Quiet**-A quiet, calm environment has been identified as essential to allow the sense of touch to be focused on as a primary stimulus.

**Warmth**-A comfortable warm room and the warm hands of the woman or her coach (including the choice of lubricant being prewarmed) adds to the sense of well-being.

Positioning-The woman's body should be well supported and in good alignment with no extremities resting or pressing on each other.

Pressure-Light pressure is oftentimes interpreted as feeling ticklish or annoying. Pressure of moderate intensity is comforting and allows the woman to focus on the massage stimulus. The coach may use his/her body weight for pressure rather than muscle force alone.

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Area of Stimulation-The areas to be stimulated by massage or effleurage may include the skin over the contracting uterus, the skin around or near the contracting uterus, or any unrelated area of the body the woman prefers.

Use of the Hands-The coach's hands should be contoured to the body part or extremity being massaged. Firm strokes should proceed in the direction of venous blood flow (the direction of the blood as it returns to the heart). A rhythm of stroke and unbroken contact should be maintained.

### **Focal Point and Attention Focusing**

A focal point may be either an external visual object to focus on, or an internal focus of attention. The focal point, whether internal or external, is a primary indicator of the woman's ability to maintain concentration and control in labor.

An external focal point is the fixing of one's visual attention upon an object which is a comfortable distance from one's eyes. The focal point reduces the stimuli taken in from the peripheral environment. It allows the individual to focus and concentrate on inner process such as breathing patterns or body rhythms. Examples of an external focal point are a pattern on the wallpaper, a stuffed animal, a favorite picture, a wrinkle in the bed sheets, and so on.

An internal focal point is closing one's eyes and using a mental image, picture or visualization as the primary visual focus. In pain threshold studies, groups using attention focusing (either external focal point or visualization), relaxation, plus coach feedback, were most able to tolerate the introduction of a painful stimulus.

### **Music**

Calm, soothing music is known to shift the listener into his/her right brain hemisphere which, in turn, stimulates the parasympathetic nervous system (PNS). Relaxation is enhanced when the PNS is stimulated. In a relaxed state, one's pain threshold is increased so that pain impulses are interpreted in a more tolerable manner.

Margo McCaffery, RRN, pain researcher, also indicated that the listener's active tapping out of the musical rhythm (mouthing the words if there are lyrics, singing along, head nodding, finger tapping, etc.) helps to increase concentration. This can be an effective blocking technique for the interpretation of painful stimuli.

**Lamaze Breathing Techniques**

Patterned breathing techniques are a learned skill which enhances relaxation. Rhythmic breathing develops body awareness and improved oxygenation. The relaxation and oxygenation aspects of the breathing techniques reduce pain perception.

Slow, rhythmic breathing of mild intensity stimulates the parasympathetic nervous system, the tranquilizing portion of the nervous system. Rapid and/or tense breathing stimulates the sympathetic nervous system, which is the arousal portion of the nervous system and is associated with stress and panic.

The optimal pace for respirations is one in which the individual woman breathes slowly and rhythmically to comfort. The inspiration should be rhythmically followed by the exhalation with no pause at the apex (top) of the breath cycle but, rather, with the pause at the end of the exhalation. The focus of each breath should be on the exhalation which is the portion of each breath cycle associated with calm.

All of the Lamaze patterned breathing techniques begin and end with a cleansing breath. A cleansing breath is a moderately-increased-over-normal inhalation and exhalation. The breath is inhaled through the nose and exhaled through the gently opened and relaxed mouth. Although the depth of air exchange is exaggerated, it is still done to comfort. The cleansing breath signals the beginning or the end of a contraction, provides a balance of oxygenation, fosters relaxation due to improved oxygenation, and provides a focus for the laboring woman.

**Slow-Paced Breathing**

This is a gentle and slow nasal inhalation with an exhalation through the relaxed, slightly opened mouth. These gentle, slow, inhalations and exhalations are repeated throughout the entire contraction. Facial movements are kept to a minimum and a forceful blow is not attempted. Each breathing cycle (or stimulated practice contraction) begins and ends with a cleansing breath. While practicing, the coach may assist the woman by saying "Contraction begins. Take a cleansing breath." The woman takes her cleansing breath and then uses the slow-paced breathing technique through the remainder of the contraction. As the contraction (or practice contraction) ends, the coach may say "Contraction ends. Take another cleansing breath."

It has been recommended that the slow-paced breathing technique be practiced at approximately half the rate of one's normal resting respiratory rate (normal adult resting rates are between 12-20 breaths per minute). Each woman should, however, find the slow and rhythmic rate which is most comfortable for her regardless of the specific number of breaths inhaled and exhaled per minute.

**Modified-Paced Breathing**

This breathing style also begins and ends with a cleansing breath. Modified-paced breathing is different from the slow-paced technique in that most women choose to do all of the inhalations and exhalations through the mouth. After the cleansing breath, each

inhalation is a shallow intake of air with an even, short and shallow exhalation accompanied by a vowel sound. Some women choose to make a short, crisp, “Hee” sound as they exhale. With the air exchange, the face remains relaxed, the lips are slightly parted, and the sound (“Hee”) is made with the placement of the tongue close to the roof of the mouth. Each practice contraction now consists of a cleansing breath, several vowel (Hee”) sounds throughout the contraction, ending with another cleansing breath.

In the past, it has been recommended that this breathing technique be done at a one-every-two-seconds-rate, or at a rate that is approximately twice the woman’s normal resting respiratory rate. If done too rapidly, however, this shallow chest breathing technique increases the work of the accessory muscles of the chest. This results in extra oxygen being consumed due to the increased work effort by the respiratory muscles. Although this technique is usually done, more quickly than at the normal resting respiratory rate, it should be done at a pace which the individual woman finds comfortable and which maintains relaxation.

### **Patterned-Paced Breathing**

Patterned-paced breathing is actually modified-paced breathing with an extra “blow” interspersed at either regular, or irregular, intervals. The extra “blow” is slightly increased inhalation-exhalation in relation to the vowel sounds (“Hees”). Patterned-paced breathing requires increased attention-focusing by the laboring woman with either a set number of “Hees” to the “blow”, or a random number of “Hees” to the “blow”. The pace is the same as for the modified-paced breathing techniques above.

Some sample Patterned-Paced Breathing can be as follows:

- 3:1 The contraction begins with a cleansing breath. The woman then does 3 “Hees” and a “blow”, 3 “Hees” and a “blow”, and so on until the contraction ends with another cleansing breath
  
- 5:3:1. The contraction begins with a cleansing breath. The woman does 5 “Hees” and a “blow”, 3 “Hees” and a “blow”, then 1 “Hee” and a “blow”, then 5 “Hees” and a “blow”, 3 “Hees” and a “blow”, then 1 “Hee” and a “blow”, and so on until the contraction ends with another cleansing breath.

**Hand Signals:** With this variation, the coach hold up 2 fingers indicating that the woman is to do 2 “Hees” before the “blow”. The coach then changes to any number of fingers to indicate how many patterned-paced breaths the woman is to take before the “blow” each time (the coach is restricted to one hand so may choose any number between 1-5 only). With each “blow” the number of fingers changes indicating the change in number of “Hees” to be done. Hand signals are intended to be a random pattern as opposed to the above preset patterns.

## **Breathing/Coaching**

### **“Hee-Blows” To Control The Urge To Push**

There are several reasons why a woman may not be encouraged or allowed to exercise her expulsive efforts when she experiences the urge to push. The most common reasons to resist the urge to push include when her cervix is not yet fully dilated or when the doctor has not yet arrived for the delivery. If a woman is directed to resist the urge to push, she will be instructed to blow through the contractions in a rapid and forceful manner. This forceful, rapid and constant inhalation and exhalation of air prevents the woman from bearing down with the contractions. Although the woman does not add her expulsive effort to the contractions when she is doing rapid “Hee-blow” breathing, her uterus continues to contract and push down on the baby.

“Hee-blow” breathing to control the urge to push is accomplished by taking in a large breath and then exhaling it forcefully with a “Hee” sound, inhaling another breath and exhaling it with a forceful blow, inhaling a large breath then exhaling it with a “Hee” sound, and so on and so on until the contraction ends. The woman must remember to take in a breath for every sound or exhalation she makes. She must also maintain a fairly rapid cycle of inhalations and exhalations as a slower cycle may allow her to hold her breath and bear down which is what she is trying to avoid doing with this technique.

### **Coach Support and Input**

Coach support and input can be important as it affects the woman’s ability to trust in herself and to effectively use the labor coping strategies of her choice. Coaching measures may include, but are not limited to, the following:

- Positive Affirmations
- Assessing Relaxation
- Feedback
- Comfort Measures
  - Massage
  - Ice Chips
  - Fanning
  - Encouraging Position Changes
  - Encouraging Use of the Bathroom
- Simultaneous Breathing with the Woman
- Interpretation of Information
- Doing Nothing If Appropriate

### **Staff Support Input**

The support of the staff and its input can be very important as it affects a woman’s ability to trust in herself and to effectively use the labor coping strategies of her choice. It can be difficult for a woman to trust in herself when she perceives conflicting messages or information coming from “experts.”



**Environmental Considerations**

There are numerous environmental factors which have been shown to have an impact on the progress of labor. Following is a list of factors which have been identified as possibly having a beneficial or a detrimental effect on the progress of labor:

**Beneficial Effect on Labor**

1. Laboring in a familiar environment
2. Laboring in a small room which more easily lends itself to a feeling of privacy
3. The laboring environment is messy (which increases the woman's sense of privacy)
4. The room is dark
5. The woman has freedom to move during labor the upright positions the most advantageous for the progress of labor
6. Delivery is in the place which the woman labored
7. Persons surrounding the laboring woman behave as participants
8. If the woman becomes very internalized and is coping well, leave her alone
9. Few persons around

**Detrimental Effect on Labor**

1. Laboring in an unfamiliar environment
2. Laboring in a large room
3. The laboring environment is neat and tidy
4. The room is bright and well-lighted
5. Movement is restricted. The recumbent position is especially associated with the prolongation of labor
6. Being moved when it is time to deliver
7. Persons surrounding the laboring woman behave as observers (decreases her sense of privacy).
8. If the woman becomes very internalized, interrupting that internalization by forcing the woman to respond to the coach or staff.
9. Lots of people around, in and out

**Birth Options and Preferences**

A Birth Plan is a written plan or checklist expressing a couple's care preferences for their labor and birth experience. A Birth Plan usually assumes a normal and uncomplicated birth, but will also contain options should a non-conforming labor occur. It is the couple's responsibility to devise their own customized Birth Plan. The customized Birth

Plan is then presented to the couple's primary caregiver for discussion, negotiation and agreement during routine prenatal appointments. It is impractical to wait to present one's Birth Plan to the hospital staff for negotiation upon arrival at the hospital in labor.

Below are listed numerous options from which a customized Birth Plan may be devised. It is understood that only a few of the many presented possibilities will be important to any one person or couple.

### **Labor Coach**

- Coach of my choice
- Coach may be (a) present, or (b) asked to leave during admission procedures such as the prep, enema, IV insertion, and/or vaginal exam.
- Coach may remain with me throughout labor-from admission to delivery and after.

### **Admission and Labor Procedures**

- Routine enema (Fleet or bucket enema) upon admission to the hospital.
- Enema upon request of patient or if patient has not had diarrhea or BMs within 6 hours of the onset of labor.
- Enema administered by patient at home prior to admission to the hospital.
- No enema.
- Routine mini prep-hair shaven around the labia.
- Clipped-Hair around the labia clipped short but not shaven.
- Unshaven and unclipped.
- Routine IV (intravenous) upon admission to the hospital.
- IV insertion delayed until active labor.
- Use of IV fluids only if a clinically indicated need develops.
- Insertion of a heparin lock (may be converted to an IV as needed).
- No IV.
- Ice chips and lollipops to keep mouth moistened.
- Ingestion of clear liquids during labor such as water, apple juice, Gatorade, Gatorade ice chips, etc
- Nothing by mouth until after delivery.
- Routine amniotomy (artificial rupture of membranes).
- Allow for spontaneous rupture of membranes unless a medical need for amniotomy arises.
- Confined to labor bed throughout labor.
- Confined to labor bed except to get up to use bathroom.
- Use of bathroom throughout labor.
- Position changes for comfort as desired.
- Ambulation (walking) in labor allowed.
- Routine electronic fetal monitoring throughout labor.
  - Routine external monitoring
  - Routine internal monitoring

- \_\_\_\_\_ Routine electronic fetal monitoring on an intermittent basis throughout labor allowing more freedom of movement, position changes, ambulation, use of bathroom, etc. Convert to continuous fetal monitoring if medically indicated.
- \_\_\_\_\_ Frequent auscultation of the fetal heart rate if EFM not used.
- \_\_\_\_\_ External telemetry fetal monitoring while woman is out of bed and ambulating.
- \_\_\_\_\_ Amniotomy (artificial rupture of the membranes) as a method to augment labor.
- \_\_\_\_\_ Routine use of oxytocics (medications) to stimulate a sluggish labor.
- \_\_\_\_\_ Allowance of non-invasive means to stimulate a sluggish labor including position changes; ambulation; removal of stressful individuals (family member, visitor, staff member); privacy with coach; warm towel on chest with tactile nipple stimulation to increase own oxytocin release.
- \_\_\_\_\_ Support by staff of couple's use of labor coping strategies including relaxation techniques, focal point and/or visualization, breathing styles, coach support, massage, music, position changes, personal expressions of noise, and more.
- \_\_\_\_\_ Staff interactions and procedures confined to time between contractions whenever possible. It is understood that some procedures may best be done during a contraction such as late labor pelvic exams, episiotomy, amniotomy, etc
- \_\_\_\_\_ Artificial pain relief decisions made with laboring woman/couple, not just by the staff.

### **Delivery and Birth**

- \_\_\_\_\_ Primips allowed to push in labor room until bulging of the perineum, then moved into delivery room for the last few pushed and delivery of the baby.
- \_\_\_\_\_ Primips and multips move to the delivery room as soon as completely dilated. All pushing done in the delivery room.
- \_\_\_\_\_ If delivering in a conventional delivery room on a conventional delivery table, have stirrups adjusted for individual height, leg length and comfort. Also, have back of table elevated so as not to be pushing flat on back.
- \_\_\_\_\_ Delivery in a birthing room, LDR/P (Labor-Delivery-Recovery/Postpartum Room), or labor room bed.
- \_\_\_\_\_ Delivery position of most comfort, accessible to birth attendant, and of best advantage for delivery of the baby.
- \_\_\_\_\_ Arms free during delivery, not strapped down.
- \_\_\_\_\_ Pushing technique expected to include prolonged breath holding and bearing down effort for expulsion. Making sounds discouraged.
- \_\_\_\_\_ Pushing technique to include a less intense, partial open-glottis technique. "Working noises" acceptable.
- \_\_\_\_\_ Two to three hour limit for second stage labor (pushing) then forceps application, vacuum extraction, or Cesarean delivery expected.
- \_\_\_\_\_ Allow a reasonable and safe amount of time for pushing without routine external fundal pressure (excluding true fetal distress requiring more active management and delivery of the infant.)
- \_\_\_\_\_ Routine episiotomy.
- \_\_\_\_\_ Necessity of episiotomy evaluated at time of crowning to baby's head.
- \_\_\_\_\_ To help prevent necessity of episiotomy-slower delivery, perineal massage, warm compresses to perineum, peniurethral support with delivery, coaching to pant-

- \_\_\_\_\_ blow (“Hee-blow”) with delivery of baby’s head; maternal position to decrease perineal pressure.
- \_\_\_\_\_ Spontaneous delivery (may require extra patience by the birth attendant).
- \_\_\_\_\_ Forceps or vacuum extraction to facilitate birth of the baby. For which indications might they be used?
- \_\_\_\_\_ Choice of anesthesia?
- \_\_\_\_\_ Infant placed in warmer immediately for evaluation and care by nurse within sight of the mother.
- \_\_\_\_\_ Infant placed on the mother’s abdomen or chest immediately for bonding. Nurse evaluated infant on mother’s chest unless infant’s condition necessitates evaluation under warmer.
- \_\_\_\_\_ Coach may cut umbilical cord if prearranged with birth attendant.
- \_\_\_\_\_ If baby is stable, infant is to be wrapped up and held by the mother and coach in delivery room for bonding.
- \_\_\_\_\_ If the infant goes to a separate nursery, the coach may accompany the baby and nurse into the nursery.
- \_\_\_\_\_ Infant to stay with parents with no separation.
- \_\_\_\_\_ Is the use of a camera and/or tape recorder and/or a video camera allowed? If so, how much and when?

#### **Delivery of Placenta**

- \_\_\_\_\_ Manual removal of placenta soon after birth of the baby.
- \_\_\_\_\_ Time limit of third stage labor to 10-15 minutes followed by manual removal of placenta.
- \_\_\_\_\_ Allowance of spontaneous delivery of placenta which can normally take from 5-30 minutes after delivery of the infant.
- \_\_\_\_\_ Routine administration of Pitocin for contraction of uterus after delivery of the placenta.
- \_\_\_\_\_ Evaluation of uterine tone prior to administration of oxytocics.

#### **Cesarean Birth**

- \_\_\_\_\_ Cesarean delivery decisions due to antepartum (pregnancy) or intrapartum (labor complication).
- \_\_\_\_\_ Scheduled surgery.
- \_\_\_\_\_ Surgery after labor begins spontaneously.
- \_\_\_\_\_ Coach in waiting room.
- \_\_\_\_\_ Coach allowed present during delivery as support person for mother.
- \_\_\_\_\_ What type of anesthesia and rationale for choice:  
Epidural, spinal, general?
- \_\_\_\_\_ What type of post-surgical and post-delivery pain relief: IM injections, morphine epidural, PCA (patient controlled administration) pump, oral tablets?
- \_\_\_\_\_ Mother allowed to wear contact lenses or glasses during delivery?
- \_\_\_\_\_ Baby held up for mother and coach to see. When baby is placed in the warmer for evaluation and care, the warmer is placed within sight of the mother.

- \_\_\_\_\_ If the infant is stable, he/she is to be wrapped up and given to the mother and the coach to hold prior to going to the nursery.
- \_\_\_\_\_ If the mother is too heavily medicated, the coach may see and touch the infant prior to the infant going to the nursery.

**Recovery Room**

- \_\_\_\_\_ Coach allowed in the recovery room with the new mother.
- \_\_\_\_\_ Coach not allowed in the recovery room.
- \_\_\_\_\_ Infant allowed in the recovery room with the mother and coach.
- \_\_\_\_\_ Infant not allowed in the recovery room.
- \_\_\_\_\_ Family members and visitors allowed in the recovery room (may be restricted to a certain number of persons at one time).
- \_\_\_\_\_ Family and visitors not allowed in the recovery room.
- \_\_\_\_\_ Privacy, as much as possible.

**Postpartum**

- \_\_\_\_\_ Baby remains with the mother and coach with no separation. Baby's initial care and observations are done in the mother's room.
- \_\_\_\_\_ Baby sent to the Admit Nursery for 2-3 hours for care and observation until considered stable.
- \_\_\_\_\_ Eye drops applied immediately to baby after birth.
- \_\_\_\_\_ Eye drops delayed for bonding for up to 2 hours after birth.
- \_\_\_\_\_ Eye drops are Iliotycin or Erythromycin get (silver nitrate is usually not used any more).
- \_\_\_\_\_ Baby's first feeding is glucose water in the nursery.
- \_\_\_\_\_ Baby's first feeding is colostrum from the new mother. Glucose water may be given if the baby does not nurse adequately at this point. It is also understood that many new babies are not enormously hungry immediately after birth.
- \_\_\_\_\_ Complete rooming-in; modified rooming-in; partial rooming-in (specify which).
- \_\_\_\_\_ Nursing or feeding on demand.
- \_\_\_\_\_ Nursing or feeding on schedule.
- \_\_\_\_\_ Unlimited coach visitation.
- \_\_\_\_\_ Specified visiting hours for coach.
- \_\_\_\_\_ Sibling and grandparent visitation with infant.
- \_\_\_\_\_ No sibling and/or grandparent visitation with infant.
- \_\_\_\_\_ If infant is in Special Care Nursery (Neonatal Intensive Care Unit), is there limited or unlimited visitation of the infant by the mother encouraged? by the coach? by the grandparents?
- \_\_\_\_\_ Circumcision
  - \_\_\_\_\_ Reasons for procedure?
  - \_\_\_\_\_ Done where, when and by whom?
  - \_\_\_\_\_ By which procedure is it done?
  - \_\_\_\_\_ How to take care of the circumcised penis until it heals?
  - \_\_\_\_\_ Cost?
- \_\_\_\_\_ No circumcision
  - \_\_\_\_\_ Rationale?

- \_\_\_ Increased incidence of non-circumcised male infants?
- \_\_\_ How to take care of an uncircumcised male child?
  
- \_\_\_ Vaginal deliveries home in \_\_\_ days if no complications.
- \_\_\_ Cesarean deliveries home in \_\_\_ days if no complications.
- \_\_\_ Early discharge program with the mother and baby home in \_\_\_ hours after the birth if no complications.
- \_\_\_ Pediatrician must discharge the baby from the hospital.
- \_\_\_ Obstetrician must discharge the mother from the hospital.
- \_\_\_ Visit by a home nurse included in the early discharge program?

## **What to Take to the Hospital**

Your bags should be packed 3 to 4 weeks before your due date, or earlier if your doctor gives you any indication that you may deliver early.

### **Mother's Suitcase**

Robe  
Slippers  
Nightgowns (nursing gowns if you plan to breastfeed)  
2 or more bras  
Nursing pads or clean, white, men's handkerchiefs  
Shower cap and toiletries  
Underwear for going home  
Going-home clothes (loose and comfortable)  
Stationery, pen, birth announcements and baby book  
Birth Report postcard  
Phone book or list of important phone numbers

### **Baby's Bag**

2 diapers and pins  
T-shirt  
Plastic pants or diaperaps  
Stretch suit or nightgown  
Receiving blanket  
Puddle pad for your lap  
Outer blanket or bunting  
(Note: New items should be laundered first to remove sizing.)

### **Lamaze Goody Bag**

Copy of Pre-admit form  
Powder, lotion or cornstarch  
Chapstick (unflavored)  
Paper and pen  
Watch with second hand  
Hair clips and/or rubber bands

Camera, film and batteries  
Small brown paper bag  
Kitchen mitt, tennis balls, ice pack (Blue Ice), small (new) paint roller, (Tupperware)  
rolling pin  
Snack for Coach  
Focal point (optional)  
Socks  
Hand fan  
Small portable radio with batteries  
Breathmints, toothbrush and toothpaste  
Class workbook/textbook  
Lollipop  
Gatorade ice chips/cubes  
Class certificate  
List of phone numbers  
Telephone calling card number

### **For Coming Home**

An approved infant car seat! Parents who use their seat belts! Drive calmly and safely to the hospital, on your way home, and from now on. Precious cargo on board!

## **Prodromal Signs of Labor**

### **Pre-Labor Signs**

#### **Lightening, Engagement, or “the baby dropped”**

Due to relaxation of the pelvic ligaments, softening of the lower uterine segment, and somewhat to a reduction in amniotic fluid volume, the fetus moved deeper into the pelvis. This typically occurs 10 days to four weeks prior to the onset of labor in primips, and just prior to or in labor for multips. Shortness of breath and heartburn are improved while urinary urgency is increased.

#### **Loss of Mucous Plug**

This is the extrusion of the plug of mucous that was filling the cervical canal during pregnancy (acting somewhat like a cork in a bottle). A few drops of blood may escape with the plug but this is not to be confused with the true bloody show of active labor.

#### **Nesting Instinct**

This is when the woman’s behavior focuses on getting the “nest” (baby’s environment) ready for the arrival of the baby. It is oftentimes manifested by rearranging of the nursery, checking and rechecking that everything is just right.

#### **Spurt of Energy**

Many women experience extra energy within approximately 24 hours prior to the onset of labor. It is thought that this spurt of energy is nature’s way of providing extra energy for the physical demands of labor. The actual etiology of this phenomenon is

unknown. Once identified, this energy should be saved for labor and not expended on cleaning the house or other chores.

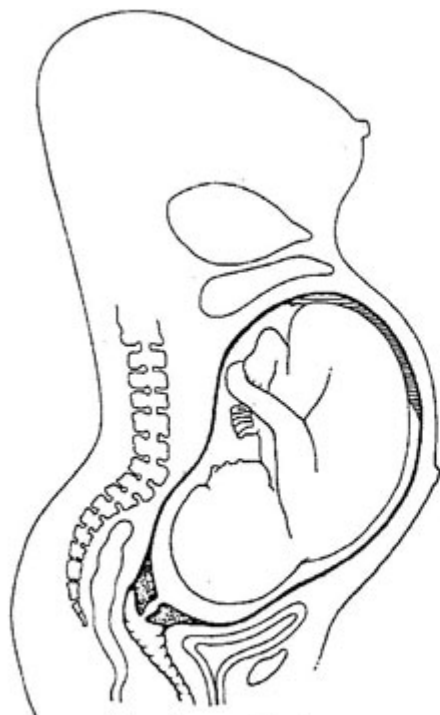
### **Weight Loss**

Within a few days of labor changing estrogen and progesterone levels affect maternal fluid balance causing the mother's weight to either stabilize or to drop from 1 to 3 pounds.

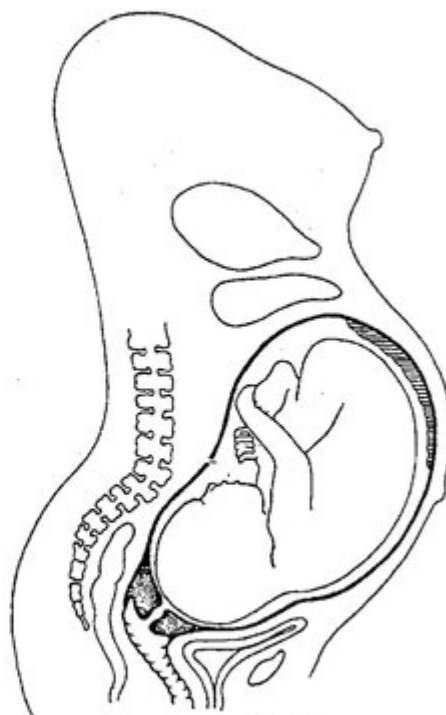
### **Flu-like Symptoms and Frequent Soft Bowel Movements**

Many women experience frequent soft bowel movements which are hormonally induced to clear the lower intestinal tract. This allows more room for the baby to move down in second stage labor. In addition, some women in early labor just feel generally unwell.

(For more information, see "Pre-Labor Readiness" in the Addendum section.)



**Prodromal Labor**  
Before Fetus Has "Dropped"



**Prodromal Labor**  
After Fetus Has "Dropped"



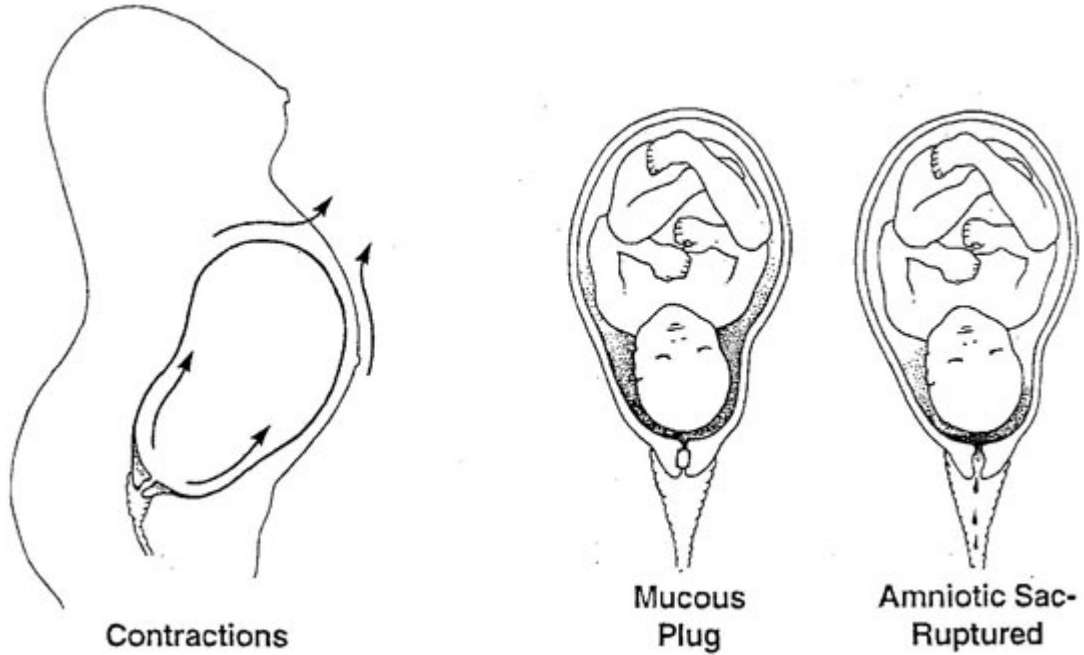
## True Labor vs. False Labor

### True Labor:

1. Contractions
  - a. Regular pattern
  - b. Over time they become closer, stronger and longer.
  - c. Walking may increase frequency and/or intensity.
  - d. Early contractions usually less than 60 seconds in duration.
  - e. May be accompanied by a backache.
  - f. A hot bath, heating pad or relaxation will not stop them.
2. Cervix
  - a. It ripens (softens), effaces (things out) and dilates (opens up).
3. Amniotic Sac
  - a. Intact or ruptures.
4. Baby
  - a. Engages (starts to descend the pelvis).
5. Mother
  - a. May have diarrhea.
  - b. May lose mucous plug.
  - c. In 10% - 12% of the cases there is a spontaneous rupture of membranes.

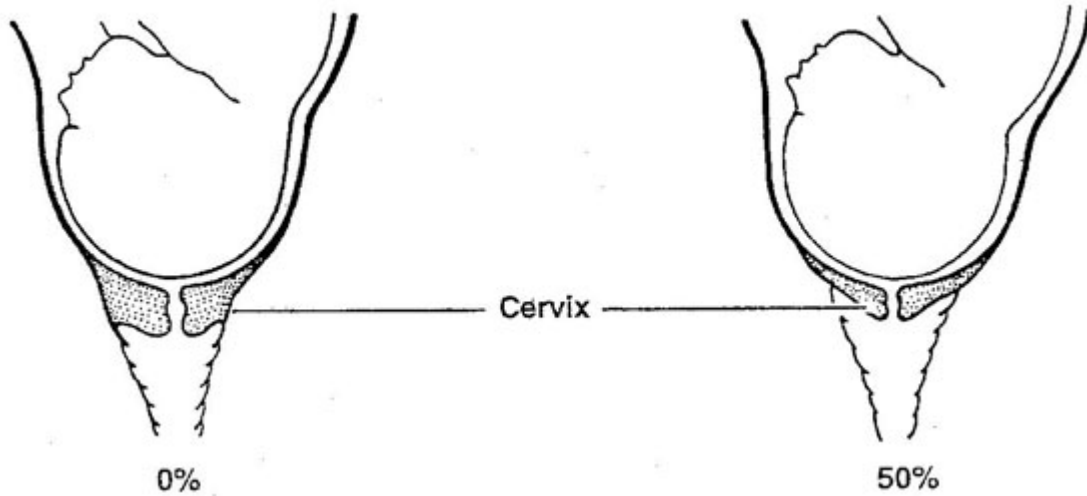
### False Labor:

1. Contractions
  - a. Usually an irregular pattern (but can be regular and will dissipate with hydration.)
  - b. Can vary.
  - c. Walking or changing position may stop them.
  - d. May last 30 – 45 seconds in duration or longer than 60 seconds.
  - e. May be accompanied by a backache.
  - f. A hot bath, heating pad or relaxation may stop them.
2. Cervix
  - a. It may ripen and may show minimal effacement and dilation.
3. Amniotic Sac
  - a. Intact.
4. Baby
  - a. May or may not descend in the pelvis.
5. Mother
  - a. Seldom has diarrhea.
  - b. Loss of mucous plug not associated with false labor.
  - c. Rupture of membranes not associated with false labor.



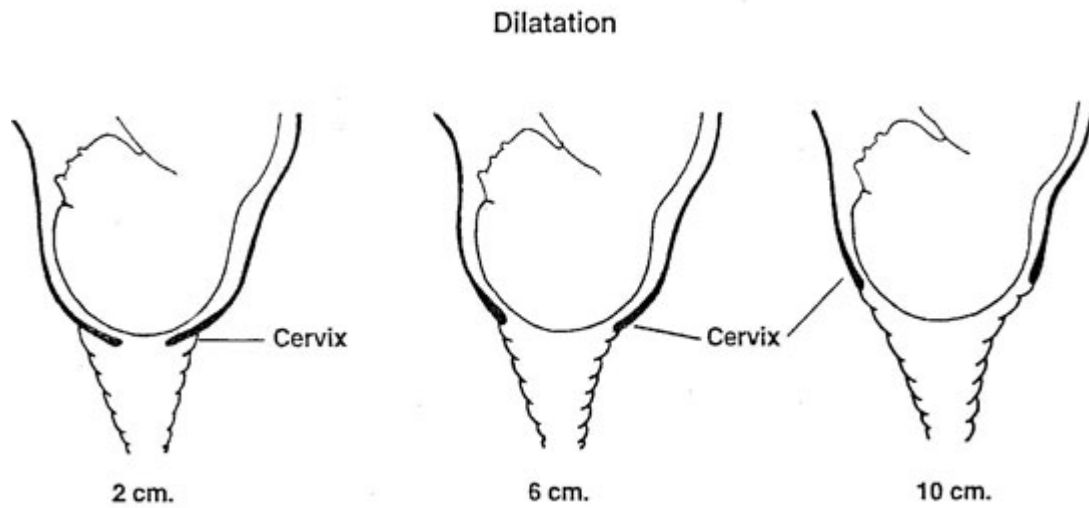
**Changes of True Labor**

**Effacement**



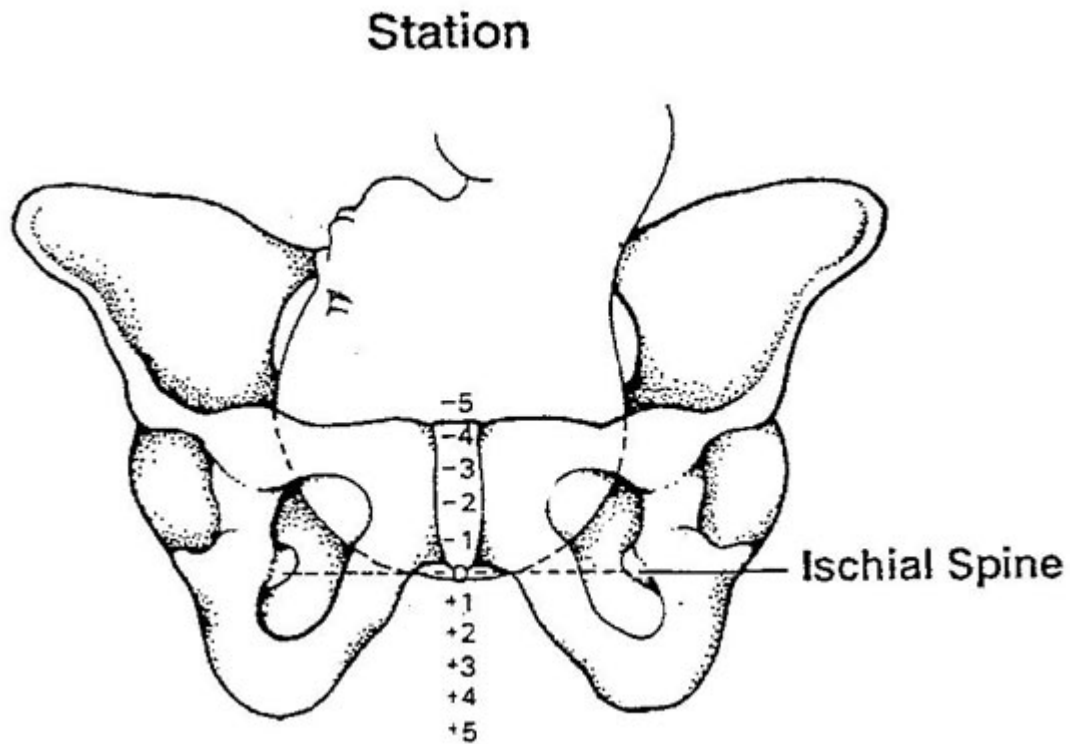
**Effacement**

The thinning or obliteration of the cervix which occurs with labor. When the length of the cervix is reduced by one half it is referred to as 50% effaced; when it has thinned out as completely as the adjacent lower uterine segment, it is referred to as 100% effaced.



**Dilation**

Stretching of the external os (opening) of the cervix to accommodate passage of the fetus and is expressed in centimeters with 10 centimeters being fully dilated.



When conducting a vaginal exam, the examiner's fingers identify the level of the fetal presenting part in relationship to an imaginary line drawn between the ischial spines of the pelvis. If the vertex is at "O" station, the baby's head is considered to be engaged.

## Admission and Hospital Labor Procedures

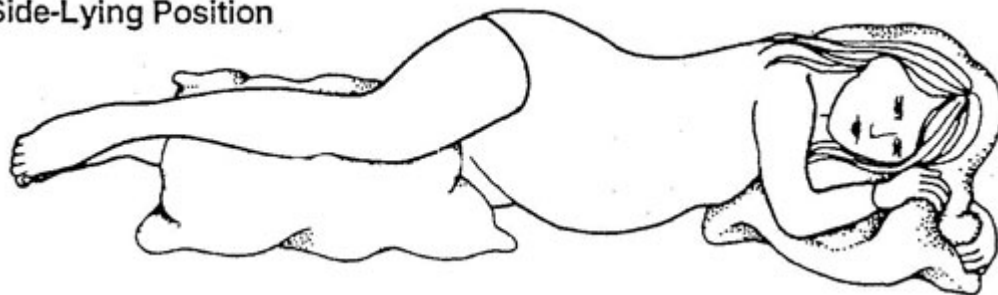
### Urinalysis

**Description:** Upon admission to the labor unit, the woman is requested to use the bathroom and to obtain a clean catch urine sample for laboratory analysis.

**Considerations:** Customary hospital routine requires a urinalysis (UA) and complete blood count (CBC) to be obtained from every admitted patient. The results of these basic laboratory tests give a baseline of information regarding the patient's health or imbalance of health at the time of admission. The urinalysis, in particular, can detect the presence of protein which is significant in identifying PIH (pregnancy-induced hypertension), or glucose which is significant in identifying diabetes.

### Recumbency

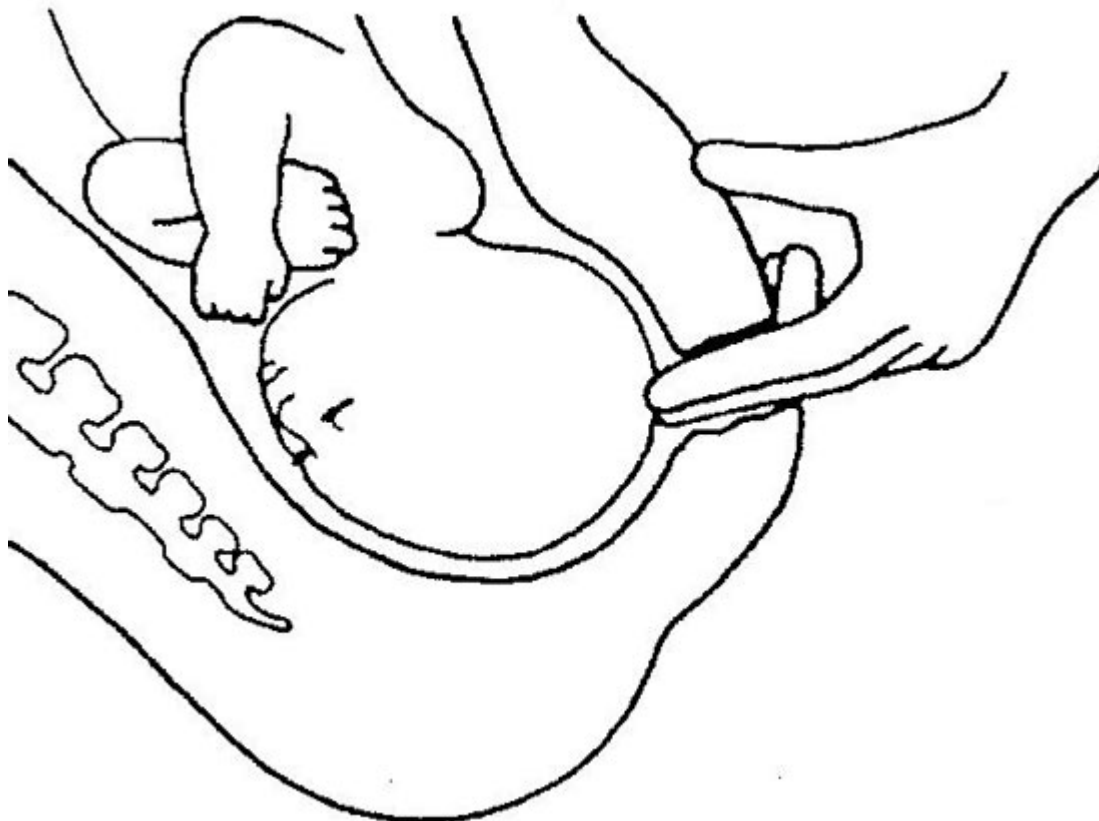
#### Left Side-Lying Position



**Description:** The physician's orders, or hospital protocol, may encourage or require the laboring woman to stay in bed for the majority of the labor. Other indirect methods for encouraging recumbency may be the lack of furniture other than the labor bed and one chair for the coach in the labor room, the provision of the immodest hospital gown to wear during labor, and/or being attached to the electronic fetal monitor and an IV.

**Considerations:** Lying flat on the back during labor compresses the inferior vena cava (a major blood vessel) reducing blood flow and oxygen to the placenta and, therefore, to the fetus. Studies show that frequent position changes and/or being upright during labor (walking, standing, etc.) produces stronger, more efficient, contractions and shorter labors. Gravity can assist the progress of labor in the upright position. When studied, most women reported that once they acclimated to the upright position, they tolerated their labors as well as or better than when in the recumbent position.

### Vaginal Exam



**Description:** While wearing a sterile glove, the examiner (labor nurse, physician or midwife) introduces the index and middle fingers into the vagina to determine the dilation and effacement of the cervix, as well as the fetal station.

**Considerations:** This examination is usually performed upon the patient's first admission to the labor unit to ascertain dilation, effacement, and fetal station at that moment. The vaginal exam is also repeated at infrequent intervals to assess the progress of labor, to determine the appropriateness of administration of medications, and to confirm the diagnosis when symptoms change (e.g., rupture of membranes, urge to push, etc.) Contraindications to performing a vaginal exam may be the admission of a pregnant woman less than 36 weeks gestation. Withholding vaginal exams with these patients reduces the risk of either introducing infection, of artificially rupturing the membranes, or of stimulating a preterm labor. (A vaginal exam, however, is the method used to determine dilation in order to make the diagnosis of preterm labor.) Copious bleeding (such as cases of placenta previa) can also be contraindication to examination.

### Complete Blood Count (CBC)

**Description:** Blood is drawn by a lab technician upon admission to the labor unit. The laboratory evaluation gives a baseline of information such as the patient's hemoglobin and hematocrit levels (H&H) which, if low, may indicate anemia; the red blood cell count (RBCs) which carry oxygen and iron; and, white blood cell count (WBCs) which is

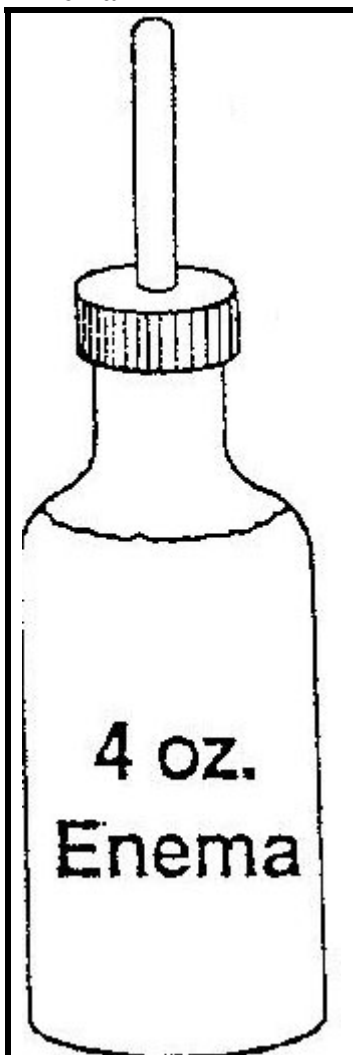
normally increased in labor and early postpartum but which may also be an indicator of an infection.

**Considerations:** Hospital protocol requires a UA and CBC to be obtained from every patient admitted to the hospital. The CBC may be drawn by the labor nurse while starting the intravenous. The nurse can attach a 10cc syringe to the IV catheter (angiocath) and draw the blood sample after initial insertion of the IV catheter in the patient's vein. When she has obtained the blood, the nurse detaches the syringe from the inserted venous catheter and attaches the IV tubing in its place. This allows for one invasive stick of the patient for two procedures (CBC and IV) instead of two invasive sticks (CBC done by a lab technician and IV by the labor nurse).

### **Mandatory Fasting**

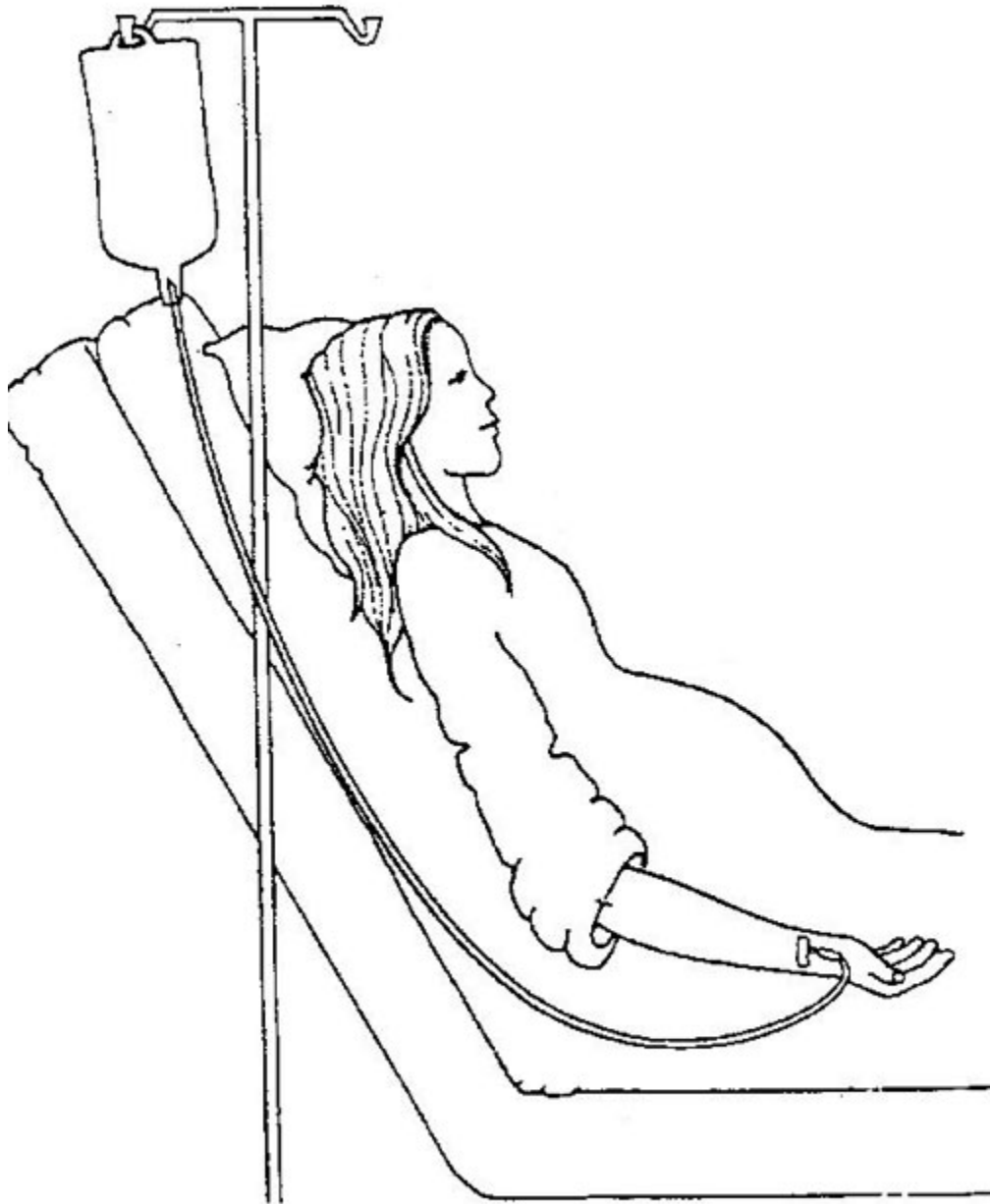
**Description:** The physician's orders or hospital policy usually prohibit ingestion of food or drink once the laboring woman is admitted to the hospital. Minimal oral fluids may be allowed via ice chips.

**Considerations:** The emptying activity of the stomach and intestines slows down dramatically during active labor so that oral nourishment is not digested well. Clear liquids do not require active digestion so may be ingested in small quantities during labor in the form of ice chips or small sips of water. Moisture is lost during oral breathing. The lips and mouth may feel dry. Ice chips, sucking on a wet wash cloth, and lip balm may afford symptomatic relief. There is a rare possibility that a patient could vomit and aspirate her stomach contents with the administration of a general anesthetic. Due to this possibility, most physicians prefer their laboring patients to keep their stomachs empty in case of an emergency Cesarean delivery. Most Cesarean deliveries are accomplished with regional anesthesia, however, and not general anesthesia.

**Enema**

**Description:** Four and a half ounces of fluid, called a Fleet enema, is emptied into the woman's rectum and she is asked to hold it for as long as she can (oftentimes 3-5 minutes). She then goes to the bathroom and evacuates her bowels until emptied of stool. (Less frequently, a bag enema containing 1000-1500 ml. of tap water is the type of enema chosen.) If the laboring woman is 6 centimeters or more dilated upon admission to the hospital, however, the enema is usually withheld.

**Considerations:** The enema is administered to empty the lower rectum which provides more space for the fetal descent (for the baby to move down). The enema may stimulate the labor by the increased release of prostaglandins upon evacuation of the bowels. Prostaglandins are hormones which stimulate uterine contractions. The enema reduces or eliminates the possibility of expelling feces during second stage labor when the woman is actively pushing. Contractions may intensify after expulsion of the enema. The enema may be unnecessary if the woman has had diarrhea or numerous bowel movements prior to the onset of labor.

**Intravenous (IV)****Intravenous (IV)**

**Description:** A needle is used to introduce a small catheter into a vein of the arm or hand. Once the catheter is in place, the needle is removed and a bag of fluid is connected to the in-dwelling venous catheter by way of a tubing between the bag of fluid and the catheter. The fluid bag or bottle may be hung on a movable pole to facilitate the patient's mobility.



**Considerations:** Intravenous solutions are used to prevent or correct maternal dehydration and/or fatigue in labor. The establishment of the IV allows for an open vein by which medications may be administered during labor. The IV establishes a port to administer emergency drugs as in the case of a postpartum hemorrhage. An established IV is required before the administration of epidural anesthesia to counteract maternal hypertension (Drop in blood pressure and its effects on the fetus. The IV, by increasing circulating blood volume and oxygen-carrying capacity, can move more oxygen to the fetus correcting a suspicious and/or nonreactive monitor strip. The IV tends to restrict maternal mobility in labor. The IV infusion of dextrose in labor has been shown to cause a rebound in hypoglycemia in the newborn. A different IV fluid may be used in labor which contains no dextrose, or the IV fluids can be alternated between one solution with dextrose and one without to decrease the possibility of rebound hypoglycemia.

### **Prep**

**Description:** Shaving of the pubic hair of the perineum (area between the vaginal opening and rectum) and/or around the labia. Many physicians no longer require routine preps for their patients.

**Considerations:** The prep was thought to eliminate a possible source of bacterial contamination. Possible nicks or scrapes of the skin occurring during the shaving procedure, however, have been found to actually increase the likelihood of infection. It was thought that a prep was necessary to provide a clear area for suturing an episiotomy or perineal tear. In the majority of women, however, there is little or no pubic hair growing in the area of the episiotomy (perineum,). If there is significant hair growth in the perineum, clipping the pubic hair just prior to delivery is usually sufficient to remove enough hair for later suturing of episiotomy repair. The perineum can be uncomfortable and itchy while the pubic hair grows back and the episiotomy heals.

### **Amniotomy**

**Description:** The artificial rupture of the amniotic sac by the physician. A hooked instrument, called an amnihook, is inserted through the vagina and a tear is made in the amniotic membranes. The actual tearing of the membranes is painless but the procedure may be uncomfortable due to the accompanying vaginal exam. Without artificial amniotomy, the membranes usually do not rupture spontaneously in the majority of labors until late first stage labor.

**Considerations:** Contractions become more intense as the cushion of amniotic fluid in front of the fetal presenting part is removed allowing more direct pressure against the cervix with each contraction. An amniotomy must be performed in order to attach the internal scalp electrode of the electronic fetal monitor to directly assess the fetal heart rate. Amniotomy may be performed to check for signs of meconium in the fluid, a possible sign of fetal distress. Once the amniotic sac is ruptured, the commitment is made to achieve active labor and delivery within 24 hours to reduce the chance of fetal infection. If labor does not progress, induction or augmentation of labor can be expected. A Cesarean delivery may be required if induction/augmentation of labor fails. It has been presumed that amniotomy may speed up labor and is oftentimes used to augment or to

induce a labor. “Rosen and Peisner (1987) reported that spontaneous rupture of the membranes during labor was followed by a shorter duration of labor when compared to artificial rupture or no rupture” (Williams Obstetrics, 18<sup>th</sup> Edition, pg. 313) .

## Stages of Labor

### First Stage of Labor

That stage when uterine contractions of sufficient frequency, intensity and duration cause the cervix to dilate from 1 to 10 centimeters, or to sufficient dilation to allow passage of the fetal head down into 3 phases of labor: early, active, and transition.

### Second Stage of Labor

Begins when dilation of the cervix is complete and ends with delivery of the infant.

### Third Stage of Labor

Begins with delivery of the infant and ends with delivery of the placenta and fetal membranes.

### Fourth Stage of Labor

Begins with delivery of the placenta and lasts for an hour or so after delivery during which time uterine “after contractions” act to control bleeding from the placental implantation site.

### Labor Chart

Stage	Dilation	Effacement	Duration
1 <sup>st</sup> Stage Early Phase	0-3 cm.	Varies	8-12 hrs. primips 6-8 hrs. multips
1 <sup>st</sup> Stage Active Phase	3-8 cm.	Often complete in this phase	3-6 hrs. primips 2-3 hrs. multips
1 <sup>st</sup> Stage Transition	8-10 cm	Complete	30-90 mins. primips 10-60 mins. multips
2 <sup>nd</sup> Stage	Complete	Complete	2 hours or less

3<sup>rd</sup> Stage

5-30 mins.

4<sup>th</sup> Stage

1 + hrs.

## First Stage of Labor

### Early Phase

#### Cervix

Dilatation.....0 to 3 cms.  
 Effacement.....Varies  
 Duration of Labor..... 8 to 12 hours for primips

#### Contractions

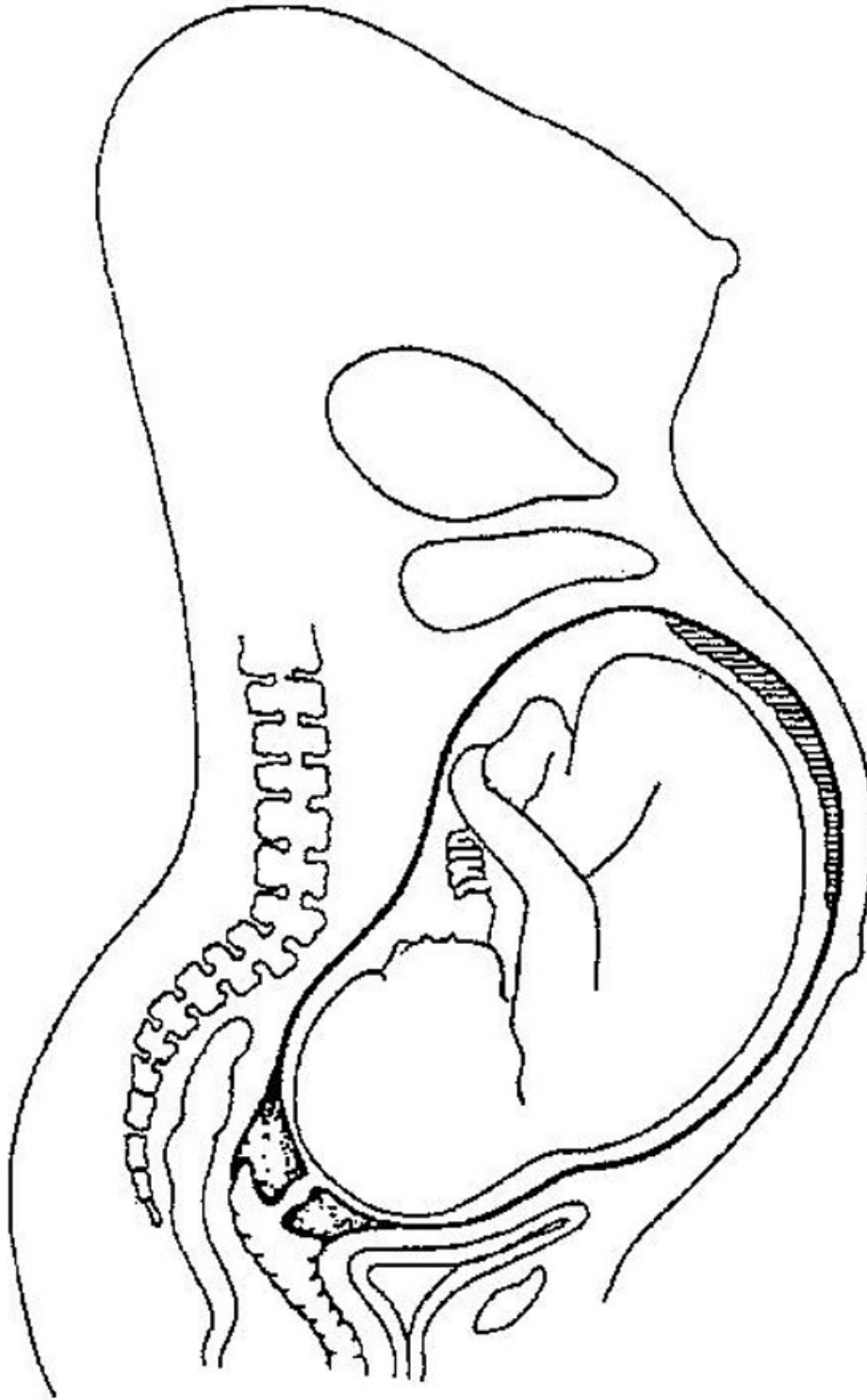
Intensity..... Mid to moderate  
 Rhythm..... Irregular to regular  
 Frequency..... 20-5 minutes apart  
 Duration..... 30-45 seconds  
 Felt as ..... Menstrual cramps, gas pains, indigestion,  
 abdominal tightening

#### Descent

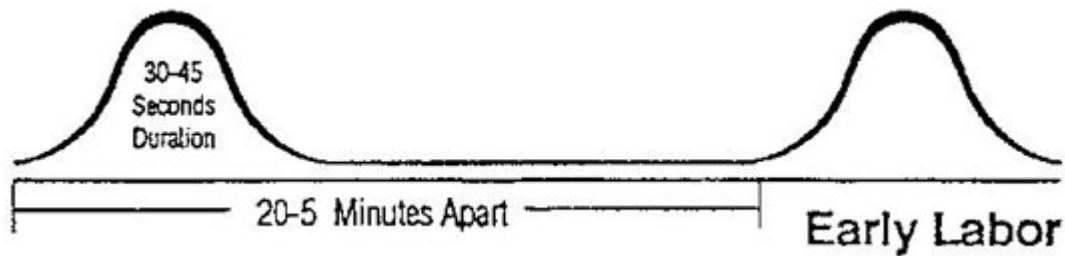
Station of presenting part.....-2 or -1

#### Bloody Show

Color..... Brownish discharge; mucous plug; or pale  
 pink mucous  
 Amount..... Scant



**Early Phase  
First Stage Labor**



### Emotional and Behavioral Changes in the Woman

- Denial
- Surprise
- Excited
- Talkative or mute
- Calm or tense
- Apprehensive, anxious
- Thoughts center on self, labor and baby
- Impatient
- Energetic, confident
- Sociable
- Pain usually controlled well
- Alert
- Follows directions well
- Open to instructions

### Coach Activities and Responsibilities

- Finish packing bags
- Finalize arrangements of care for children and pets
- Prepare "coach's snack"
- Practice relaxation skills
- Use distraction
- Encourage only light activity alternating with rest and relaxation. Resist "spurt of energy"
- Encourage clear fluids and light, easily digested meals
- Time contractions
- Call doctor and hospital when appropriate
- Assist with relaxation and breathing skills when necessary
- Accept behavior
- Praise efforts
- Encourage
- Provide support and comfort measures (massage, positioning, ice chips, fanning).
- Provide privacy
- Remember favorite music/tape player

## First Stage of Labor

### Active Phase

#### Cervix

Dilatation.....	3 to 8 cms.
Effacement.....	Usually complete in this phase
Duration of Labor.....	3 to 6 hours for primips 2 to 3 hours for multips

#### Contractions

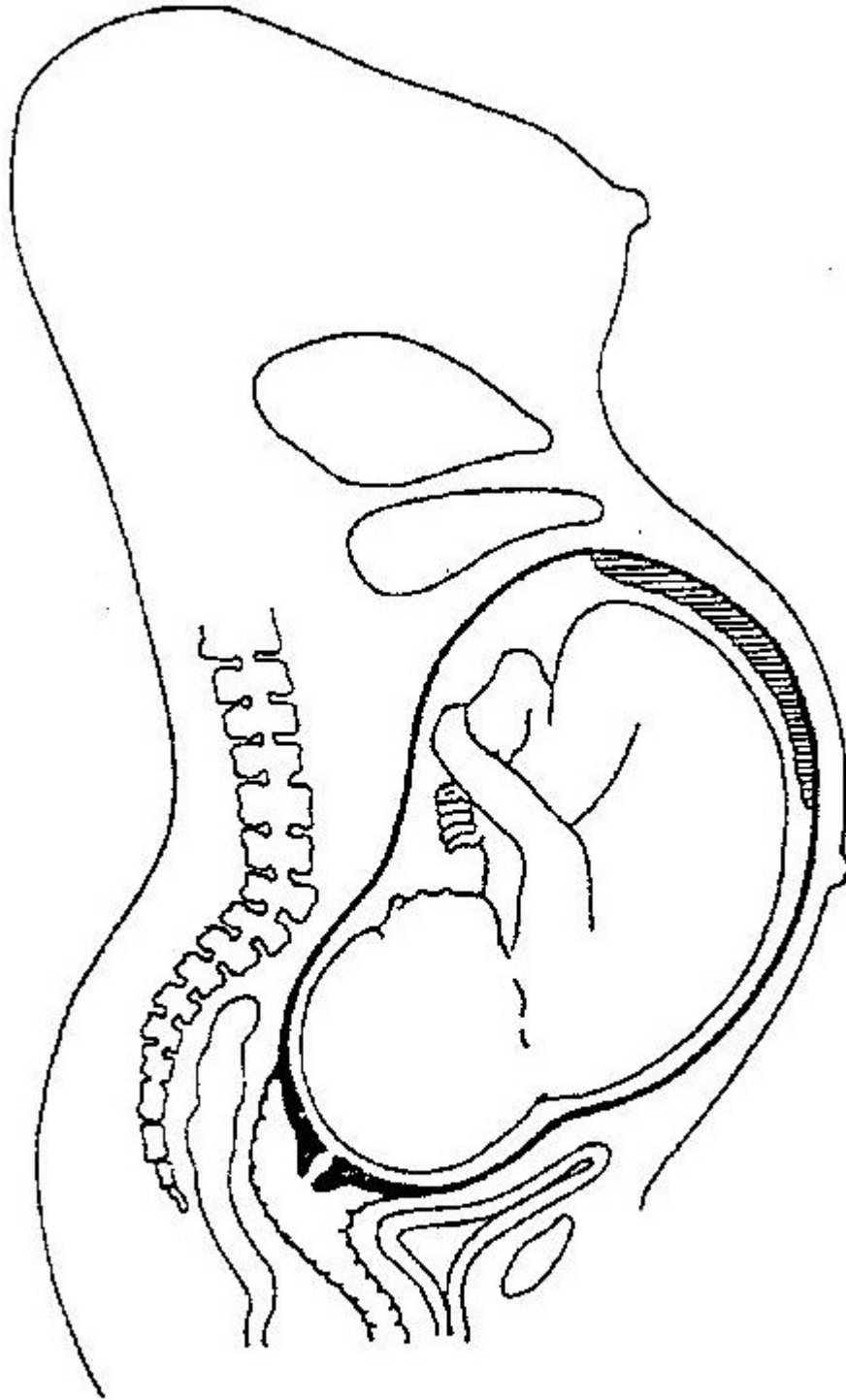
Intensity.....	Moderately Strong to Strong
Rhythm.....	More regular
Frequency.....	5-3 minutes apart
Duration.....	45 to 60 seconds
Felt as .....	Strong abdominal tightening. May also be felt as back pain with "back labor"

#### Descent

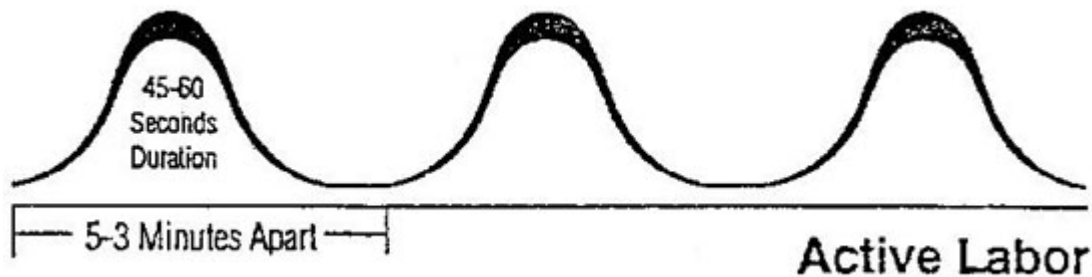
Station of presenting part	-2, -1 or 0
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#### Bloody Show

Color.....	Pink to bloody mucous
Amount.....	Scant to moderate



**Active Phase**  
**First Stage Labor**



### Emotional and Behavioral Changes in the Woman

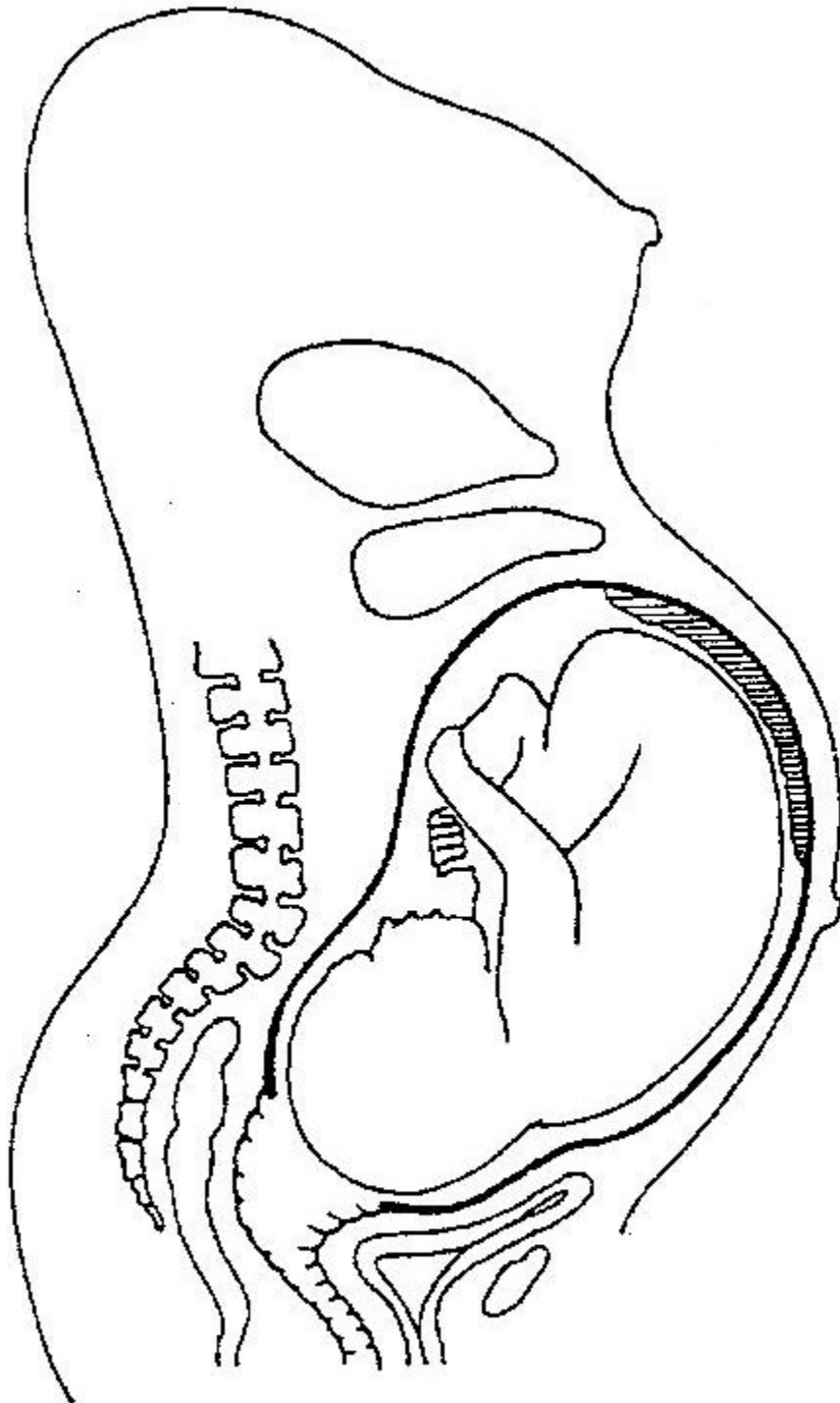
- More introverted
- Less talkative
- More apprehensive
- Serious
- Requires more support, companionship & encouragement
- May evidence fatigue
- Doubts ability to control pain
- Less self-confidence
- Must concentrate more during contractions
- May have some difficulty following directions
- May be restless
- May hyperventilate
- Knows she's in true labor

### Coach Activities and Responsibilities

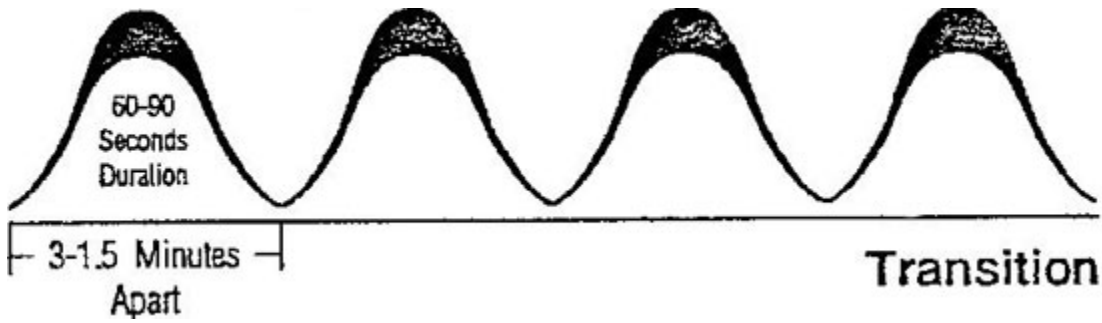
- Assist with relaxation & breathing techniques
- Remind her of focal point & effleurage
- Favorite music in background
- Anticipate physical needs:
  - Encourage ambulation and/or position changes
  - Hourly urination
  - Use of lip balm
  - Ice chips
  - Cool, damp washcloth to forehead or back of neck
  - Fanning
  - Low back counter-pressure
  - Massage
  - Shower, if permitted
- Encourage. Speak to mother or give her instructions using simple, positive and direct statements between contractions. Inform her of dilation.
- Time & record contractions
- Use trigger words from previous practices such as "Relax", "Let go", "Release tension", "Concentrate", "You are wonderful", "You can do this", "I love you", and so on.
- Stay with mother as much as possible. Take short breaks only as necessary.
- Interpret staff communications to mother. Collaborate on decisions with mother and health team.



### First Stage of Labor



**Transition**  
**First Stage Labor**



**Cervix**

- Dilation..... 8 to 10 cms.
- Effacement..... Complete
- Duration of Labor..... 30 to 90 minutes for primips  
10 minutes to 1 hour for multips

**Contractions**

- Intensity..... Strong to expulsive
- Rhythm..... Regular
- Frequency..... 3-1.5 minutes apart
- Duration..... 60 – 90 seconds
- Felt as ..... Intense abdominal tightening to strong urge to push.  
May also be felt as back pain with “back labor”

**Descent**

- Station of presenting part -1 to +1

**Bloody Show**

- Color..... Bloody mucous
- Amount..... Moderate to copious

**Emotional and Behavioral Changes in the Woman**

- Irritable
- Anxious
- Feeling of panic
- Susceptible to suggestions, vulnerable, dependent
- Mood change. Apprehensive, “I can’t do this”
- Disoriented, loses sense of time
- May fear losing control
- May dislike being touched
- May find odors offensive
- May resist position changes
- Loss of inhibitions
- Low, descending backache
- Trembling

Hot flashes, chills, or both  
Amnesia or confusion  
May feel nauseous and/or vomit  
Sleepy between contractions  
Vague in communications  
Vocalizations (noises), groaning, grunting  
May be calm, almost meditative  
Or, none of the above  
Rectal pressure, urge to push

**Coach Activities and Responsibilities**

Provide perspective encouragement. This is the most difficult part of labor but also the shortest.

Remain supportive. Tell her she is “Doing great”, “I love you”, “It’s almost over”, “The baby’s almost here”, Help her focus on only one contraction at a time. Always be positive.

Take nothing personally at this point. Don’t overreact to her moodiness.

Don’t leave during this phase (no matter what she may say).

Have her urinate at the onset of transition

Encourage position changes 1-2 times per hour

Decisions with mother and health team

Actively support her relaxation as much as possible, and breathe with her as necessary. Use eye-to-eye contact. Help her drain tension between contractions.

Help her visualize the cervix opening, the baby coming down.

If you must ask her questions, ask ones that can be answered “Yes” or “No”.

Observe for signs of hyperventilation.

Provide a cool washcloth for her forehead or back of neck. Use fan. Give low back counter-pressure as desired.

Massage as desired.

Use lip balm. Give ice chips.

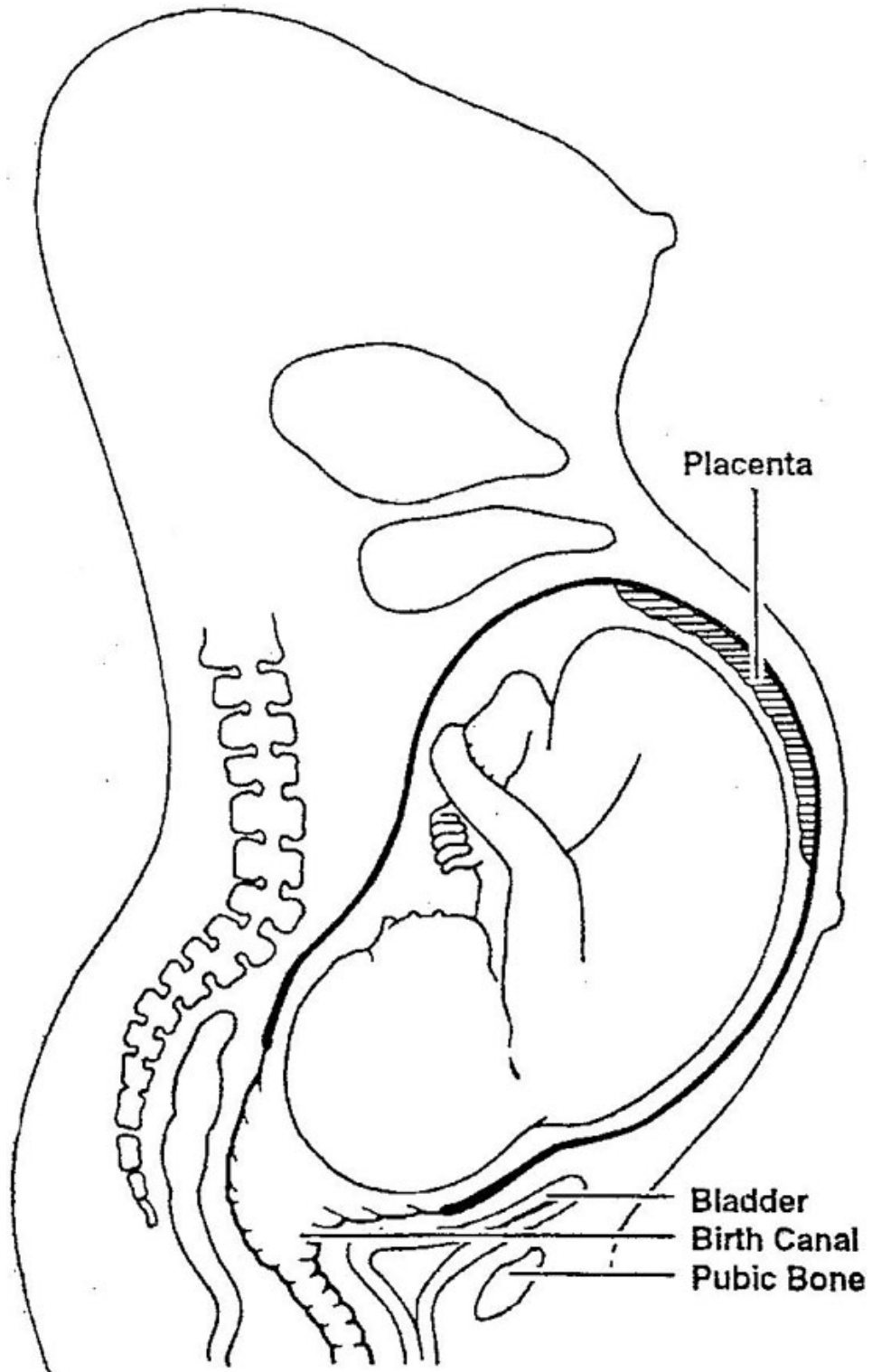
Vary breathing patterns for maximum concentration.

Provide warm blankets and/or socks, if desired. Remove cover if too warm.

Low groaning noises are okay.

Observe for urge to push. Use appropriate breathing to prevent urge to push when it occurs, until pushing is allowed.

**Second Stage of Labor**



**Second Stage Labor-1**

**Birth or Expulsion**

**Contractions**

Intensity..... Very Strong  
Rhythm..... Regular  
Frequency..... 2-5 minutes apart  
Duration..... 50 – 90 seconds

**Descent**

From mid-pelvis to expulsion (birth)

**Bloody Show**

Color .....Bloody mucous  
Amount..... Copious

**Placenta**



**Second Stage Labor-2**

**Emotional and Behavioral Changes in the Woman**

Awake and alert, gets a “second wind”

Initial inability to remember how to push

Totally involved with pushing during contractions but eager for interaction between contractions

Feels more in control

May be excited, euphoric, elated

Has strong urge to push (unless has deep regional block such as epidural). Relief at being able to push.

Pushing with contractions usually felt as a great relief due to pressure from the baby’s head causing a natural numbing of the nerves in the mother’s pelvic area (a small number of women find pushing painful, however, if they fail to relax the pelvic floor muscles or in the infant’s head is still rotating).

Pressure on tailbone, rectum and pelvic floor with rectal bulging, flattening of the perineum and heavy bloody show.

Stretching or burning sensation felt briefly as baby’s head emerges and if mother not anesthetized

May be overwhelmed with emotions with birth of infant

May feel relief, love, joy, satisfaction, strength

May be exhausted

May feel disappointment with self, labor, and/or the baby

**Coach Activities and Responsibilities**

Assist woman with proper positioning for expulsion efforts (pushing)

Participate with pushing including physical support and counting for woman’s bearing down efforts

Help her relax between contractions and remind her to relax her pelvic floor muscles (Kegels)

Cool washcloth to forehead

Ice chips and lip balm

Be encouraging

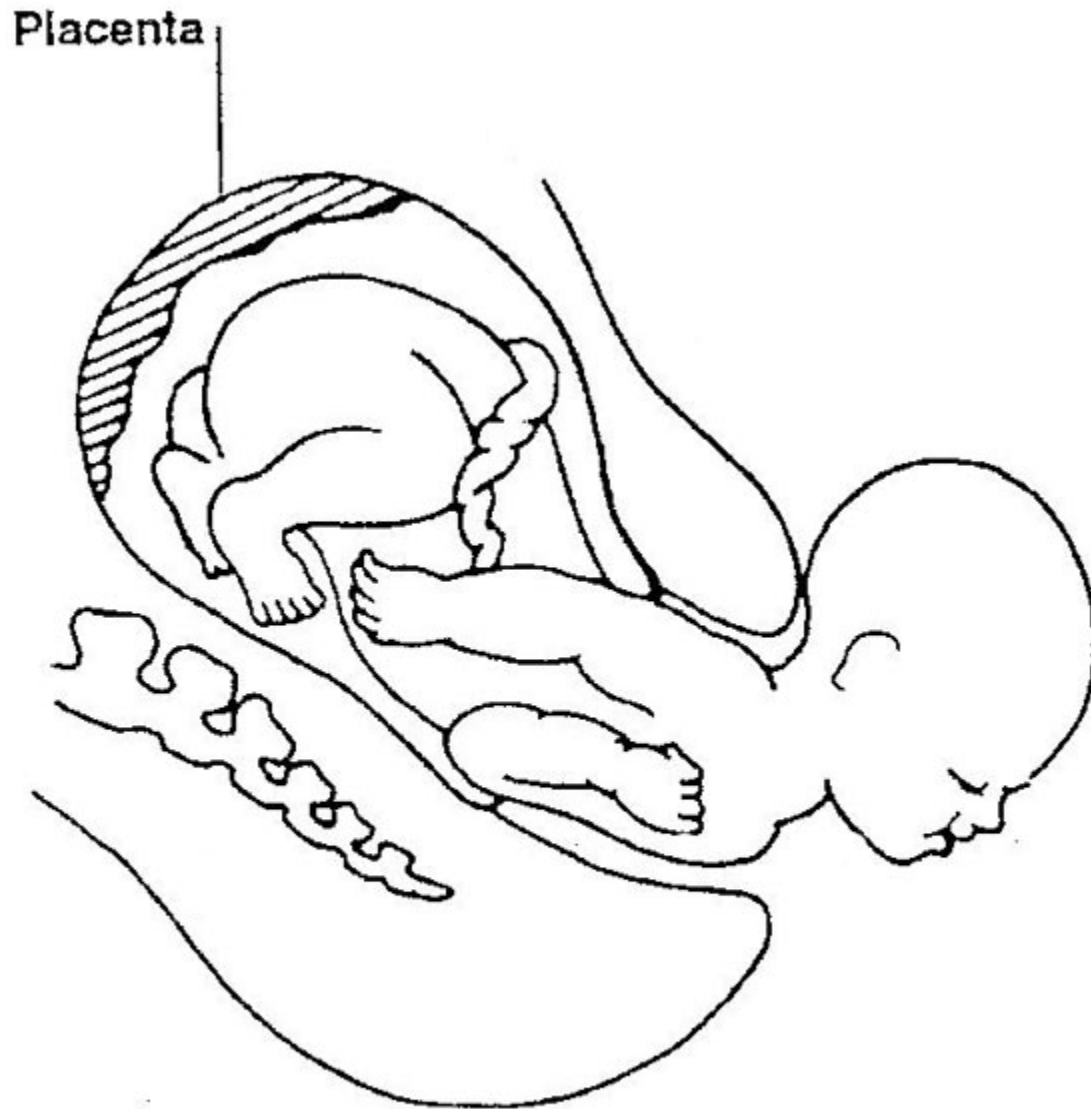
Share in the experience

May be overwhelmed with emotions with birth of infant

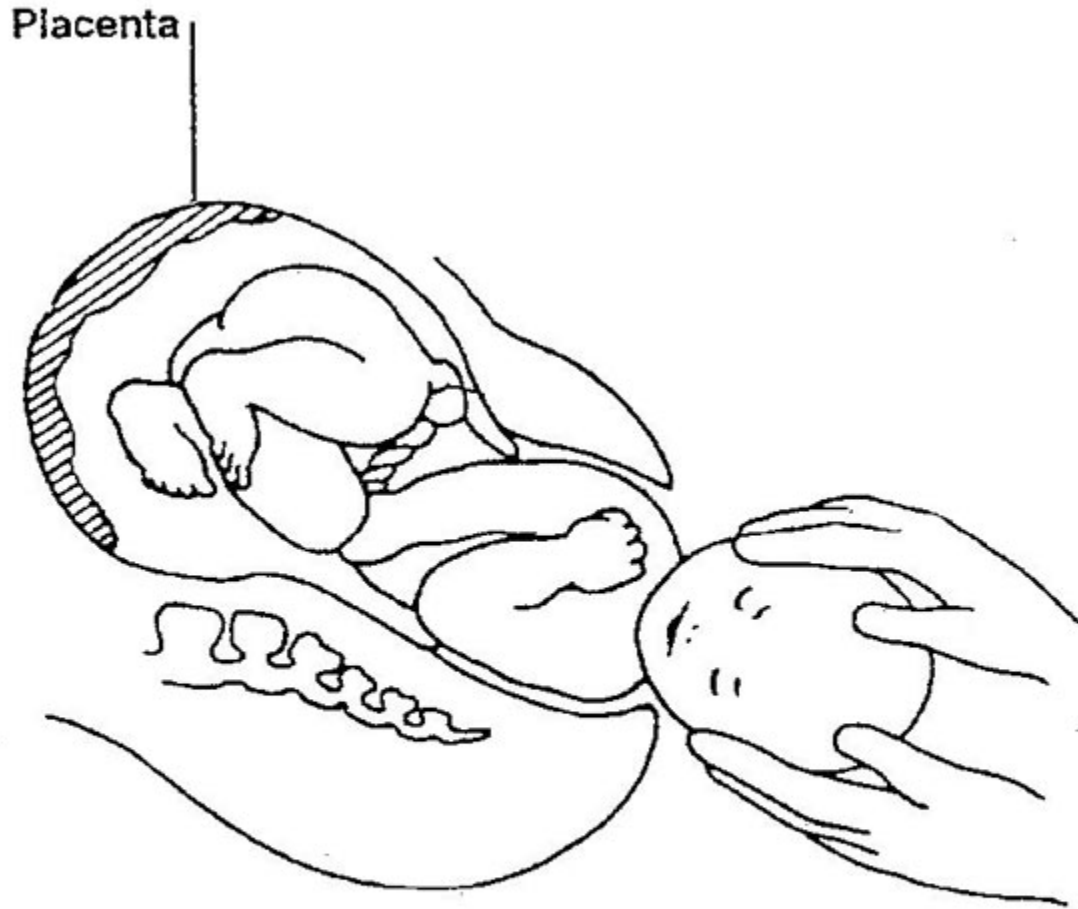
May feel relief, love, joy, satisfaction, strength

May be exhausted

May feel disappointment with self, labor, and/or baby

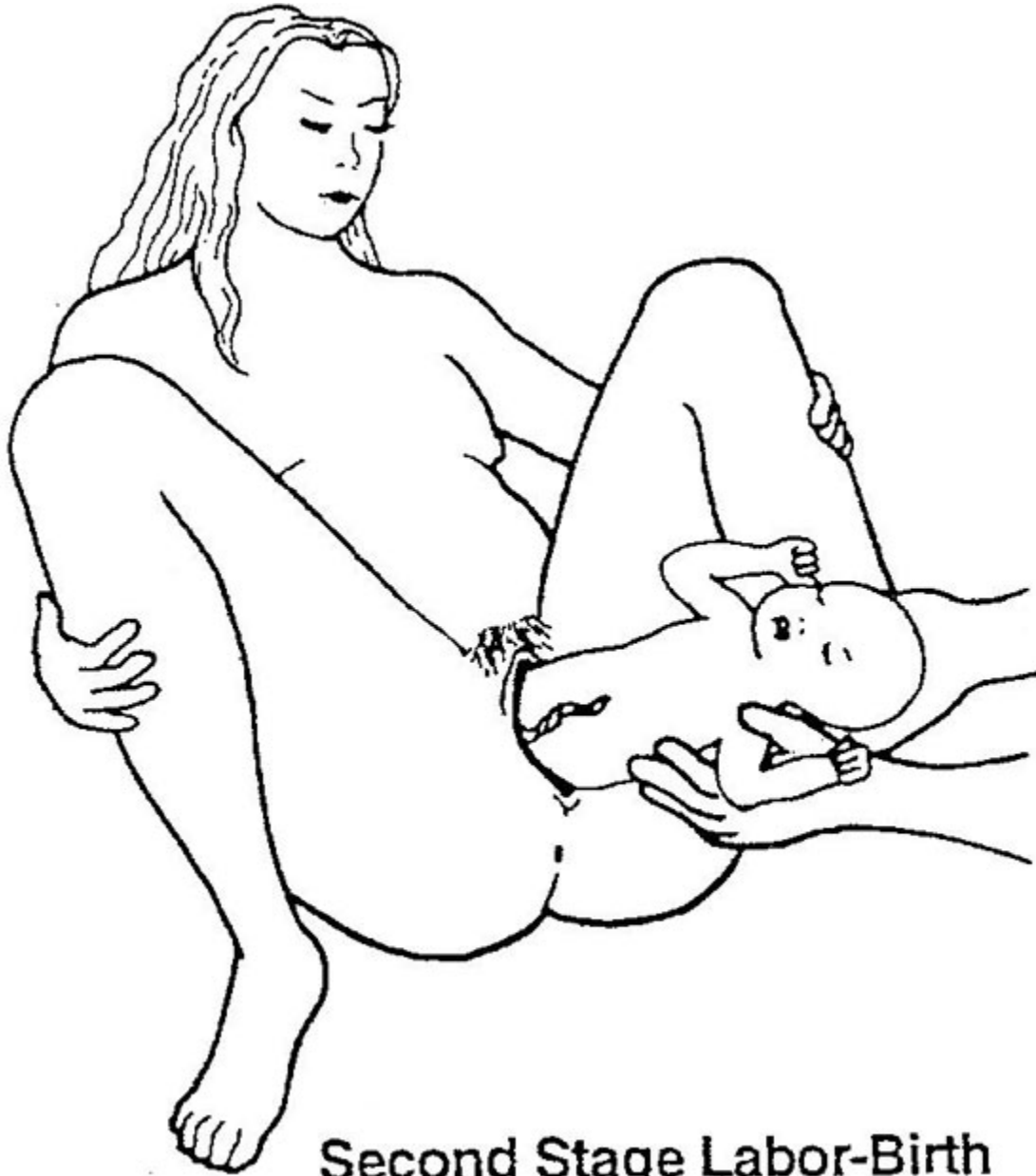


Second Stage Labor-3



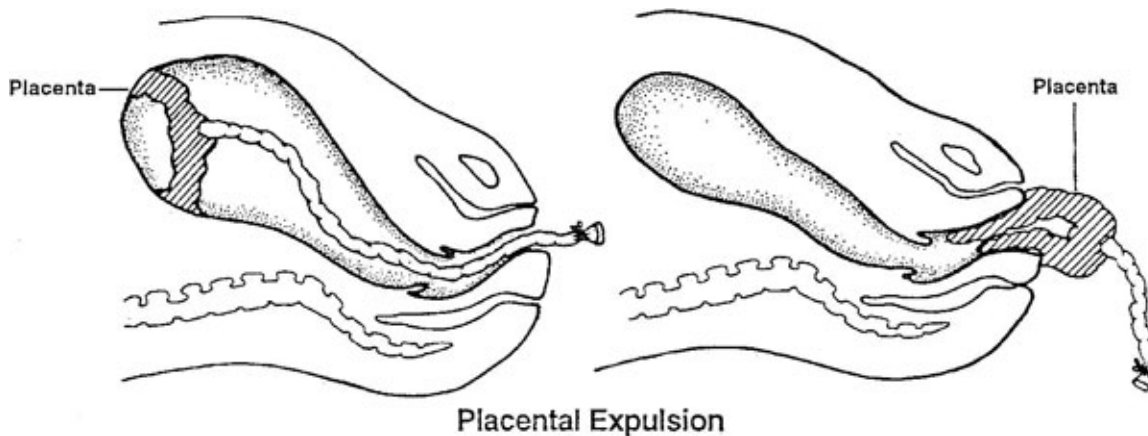
Second Stage Labor-4





## Third Stage of Labor

### Placental



### Contractions

Intensity

Mild to primips

Moderate in multips

### Emotional, Physical and Behavioral Changes in the Woman

Contractions temporarily cease with birth of the infant then resume. In primips, these contractions are typically mild. In multips, the uterus often contracts vigorously at intervals giving rise to painful sensations known as “after contractions”. Oral analgesics can be helpful.

Detachment of placenta typically occurs within 5-30 minutes after birth of infant. After delivery of placenta, Pitocin is often added to the intravenous solution. This is done to assist the uterus to contract efficiently to reduce the amount of vaginal bleeding thereby minimizing the possibility of postpartum hemorrhage.

Lochia (vaginal discharge of blood and tissue) begins after delivery of the placenta and, initially, is bright red in color and large in quantity.

Episiotomy and/or any vaginal or perineal tears are repaired

Woman experiences generalized body trembling (“shakes”) due to circulatory changes which can be misinterpreted as chills or as being cold

Woman is typically alert, euphoric, tired, emotional, laughing, and/or crying

She seeks reassurance that the infant is normal. Woman seeks contact with the infant

She expresses emotion with significant others

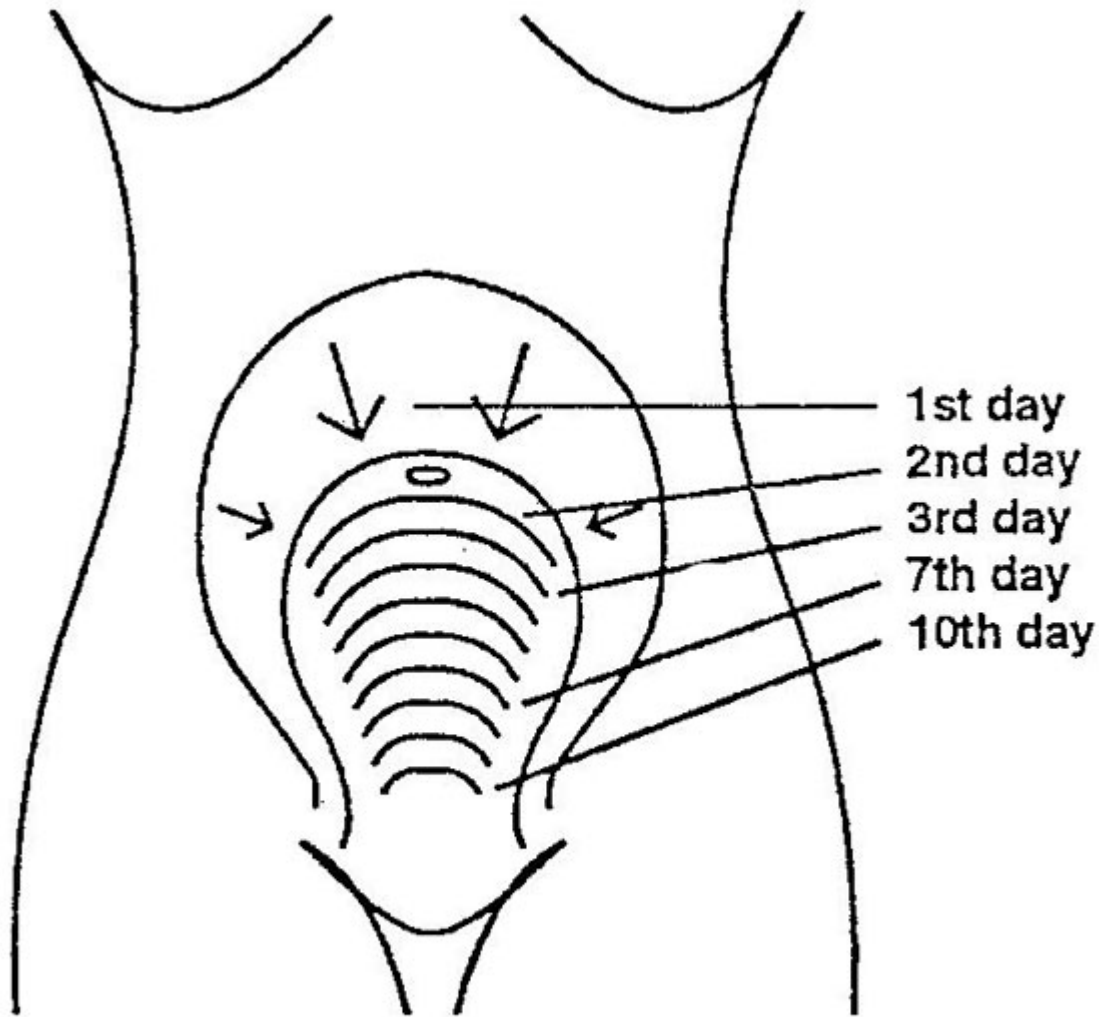
Woman asks questions about labor and delivery, recalls events vividly, and/or may express apology for labor behavior

**Coach Activities and Responses**

- Typically focuses attention on infant
- Visually examines infant, esp. as nurse is giving initial cares to infant (drying, suctioning, putting on arm bands, etc.)
- Desires to touch and hold infant
- May be apprehensive about holding infant
- Feels protective of infant. Often thinks nurses and doctor handle infant without proper tenderness
- Bring baby to mother once infant has been dried and wrapped in clean, dry blankets (or nurse will bring baby to mother)
- Enjoy baby's behaviors with mother (squinting, opening eyes, moving lips and tongue, crying, etc.)
- Feels overwhelming emotion
- May be tearful
- May be tired
- May be initially disappointed, as with sex of child
- Stay with infant as baby goes to nursery for vital signs, to be weighed, bathed, etc. (if not in a LDR/P or birthing room)

**Fourth Stage of Labor**

**Recovery**



**Uterine Involution**

**Contractions**

Intensity

“After-contractions” mild in primips

“After-contractions” moderate in multips

**Emotional, Physical and Behavioral Changes in the Woman**

Vital signs are monitored regularly (every 15 mins.) and tend to return to normal within one hour

- Immediately after delivery, placental site is approximately the size of the palm of the hand (by the 13<sup>th</sup> to 14 day after delivery, the placental site is 3-4 cm. in diameter)
- The lochia (vaginal blood and tissue discharge ) is bright red and large in quantity for the first few days after delivery (after 3-4 days, the lochia becomes progressively paler to a more pinkish color and smaller in quantity. After the 10<sup>th</sup> day, the lochia assumes a yellowish-white color as is scant in amount. Lochia tends to disappear in 3-4 weeks after delivery but can persist for up to 6 weeks with early resumption of activities)
- Fundus is massaged every 15 minutes for first hour after delivery to assess uterine firmness and amount of lochia flow
- The bladder postpartum has an increased volume capacity and a relative insensitivity to increased fluid pressure. Overdistention of the bladder can dislocate the uterus causing hypotonus leading to excessive bleeding. Incomplete urine emptying and excessive urine retention can lead to bladder infections. For these reasons, the woman's ability to empty her bladder with the first 4 hours after delivery is carefully observed. If she cannot void adequately, she can expect to be catheterized.
- The "shakes" continue for 1-2 hours
- An ice pack to the perineum can be soothing and may reduce swelling at the episiotomy site
- If the episiotomy site or "after-contractions" are painful, oral medications can be given
- The woman is usually thirsty and may claim to be hungry as well due to calories expended during labor and missed meals
- The woman may feel relief, elation, excitement or exhaustion
- The woman may desire to recount the labor experience with family members and visitors

### **Coach Activities and Responses**

- Desires to show off baby
- Enjoys telling others about baby, what has been done to the infant thus far, how the infant has responded, and about the baby's behaviors.
- Retells own account of labor
- May feel relief, elation, excitement or exhaustion
- May be hungry due to missed meals while participating in the labor.

### **Pushing for Birth**

The primary consideration in choosing an expulsive position is its ability to promote the optimal progress of labor. The position of the mother, the position of the baby, and whether the mother is anesthetized or not can affect the efficiency of the maternal bearing down effort during second stage labor. This, in turn, can effect the length of time spent, and the amount of effort expended in second stage labor or expulsion of the baby.

<b>Position</b>	<b>Advantages</b>	<b>Disadvantages</b>
<b>Squatting</b>	<p>Takes advantage of gravity</p> <p>Relieves back pain</p> <p>Widens pelvic outlet by as much as 0.52 centimeters more than in other positions</p> <p>Requires less bearing-down effort as expulsive efforts create more pressure than in other positions</p> <p>Shorter second stage</p> <p>Enhances descent and rotation of baby.</p> <p>Avoids supine hypotension.</p> <p>Relieves back pain</p>	<p>Legs can become fatigued. May be tiring.</p> <p>Can make second stage too rapid</p> <p>May promote increased cervical and perineal edema</p> <p>Inconvenient for birth attendant</p> <p>May be difficult to assume the squatting position on a bed unless using a birthing bed with a squatting bar.</p> <p>In multiparous women, pronounced relaxation of the abdominal muscles may allow the fetus to fall forward sometimes impeding descent because the fetus' shoulders get stuck on the pubic bone.</p>
<b>Sitting Semi-Sitting</b>	<p>The woman's back and pelvis are inclined at a favorable angle for fetal descent.</p> <p>Relieves back pain.</p> <p>Gravity advantage. Expulsive efforts are efficient.</p> <p>Can be used with fetal monitoring easily.</p> <p>Increases pelvic diameter although not as much as squatting.</p> <p>Good access to the perineum for control of delivery and/or use of interventions such as episiotomy, anesthesia, forceps, etc.</p> <p>Helps relax perineum for effective bearing down.</p>	<p>Needs back support.</p> <p>May aggravate hemorrhoids.</p> <p>May restrict easy movement of sacrum when more room is needed in the pelvis.</p> <p>May slow passage of head under pubic bone.</p>
<b>Hands And Knees</b>	<p>Relieves backache.</p> <p>Assists rotation of a posterior baby.</p> <p>Takes pressure off of hemorrhoids</p> <p>No weight on inferior vena cava (large blood vessel) thereby lessening fetal distress</p> <p>Beneficial for a too rapidly progressing delivery</p>	<p>May be tiring for long periods.</p> <p>Support with bean bag chair and/or pillows helpful.</p> <p>May not be convenient for birth attendant.</p> <p>Does not speed second stage.</p> <p>Difficult to maintain external</p> <p>Difficult to interact with birth attendant and baby during</p>

	Slows descent and allows the perineum to distend more slowly. It is advocated as the position for delivery of tight shoulders.	delivery. Must turn woman to recumbent position for delivery of placenta and any repair work.
<b>Side-Lying Or Lateral</b>	Avoids compression of major blood vessels with resulting optimal blood flow to uterus and fetus. Restful position Helps lower elevated BP. Gravity neutral position so can help to slow a rapid second stage. Lessens pressure on hemorrhoids. May be helpful in relieving a shoulder dystocia. May prevent some perineal lacerations due to decreased tension on perineum. Conducive for controlled delivery.	Contractions may be less frequent thus prolonging second stage. Less efficient position for expulsive efforts. Needs assistance holding upper leg for delivery. May be inconvenient for birth attendant. Difficult position for use of forceps or repair of episiotomy.
<b>Semi-Lithotomy</b> (flat on back with head of bed elevated 30 degrees, legs in stirrups, hips at edge of delivery table)	Convenient for birth attendant. Useful position for interventions (forceps, vacuum extraction) and repairs (episiotomy). Mother able to view birth Minimal gravity advantage. Easy to listen to fetal heart tones.	Possible leg cramps. Restricts movement of pelvis. Fetal distress can occur because of compression on major blood vessels (aorta and vena cava). Decreased ability to push.
<b>Lithotomy</b> (flat on back legs in stirrups, hips at edge of delivery table).	Convenient for birth attendant. Useful position for interventions (forceps, vacuum extraction) and repairs (episiotomy). Easy to listen to fetal heart tones Can be restful position Less back strain.	Possible leg cramps Restricts movement of pelvis. Fetal distress can occur because of compression on major blood vessels (aorta and inferior vena cava). Works against gravity. Contractions less productive. Decreased ability to push. Restricted movement of pelvis. Less active participation with baby and birth attendant.

Sense of vulnerability.  
Difficult for mother to see or hold  
baby after birth.  
Rarely, blood clots in legs due to  
legs in stirrups for prolonged  
period of time.



**Pushing  
“C” Position**

### **Technique for Pushing**

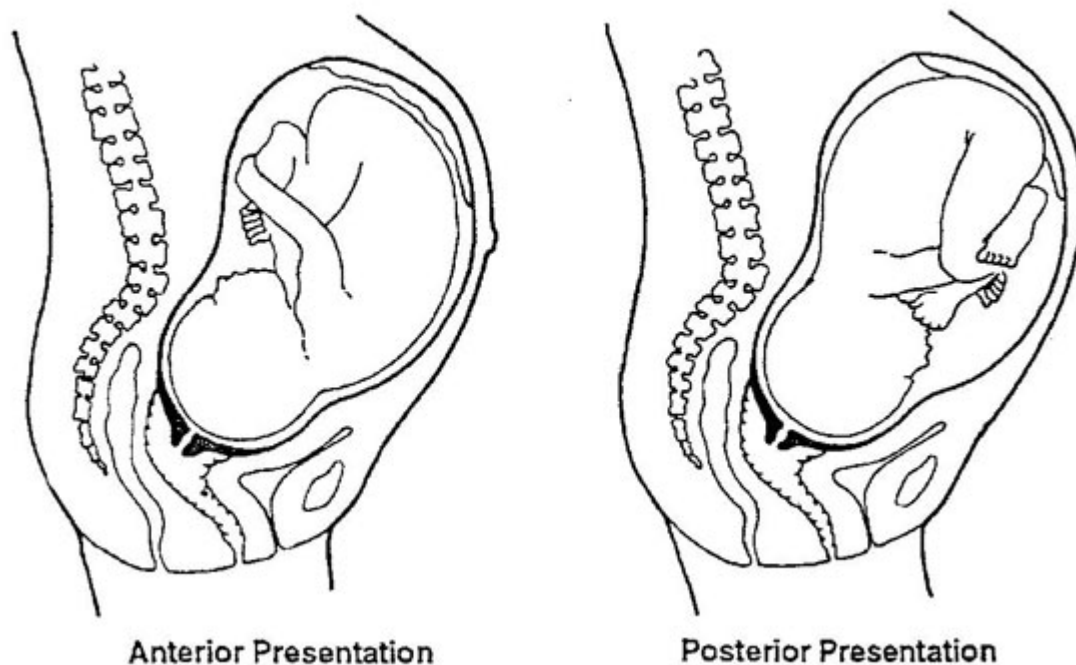
This technique may be adapted to any of the pushing positions previously described.

1. In the semi-reclining position, lean back to a 30 degree angle with knees out, ankles down and soles of feet touching. For comfort, place pillows or blanket rolls under knees.



2. As the contraction begins and builds in intensity, inhale and exhale two cleansing breaths. As the urge to push builds, take in the third breath and hold it.
3. Contract your abdominal muscles in a good pelvic tilt (letter “C” slump position). As you round your back in a “C”-curve, do not sit up over the baby. Instead, pull your knees out gently with your hands under your knees and your elbows out. This position of the hands and elbows maintains the rounded curve of the back.
4. Relax the pelvic floor muscles. Think, “Open, out, release.”
5. Hold your breath and bear down as the coach counts 1-10 (no longer than 8-10 seconds of breath holding per cycle as prolonged breath holding can cause a drop in the fetal heart tones). The coach should support your head forward as you push.
6. Let your breath out and inhale your next breath quickly while maintaining abdominal pressure and pushing effort to your coach’s count of 1-10. Do this again and again until the contraction ends.
7. Push only when the uterus is contracting. Relax between contractions. Take deep, relaxing breaths. Release all muscle tension.
8. When the baby’s head bulges the perineum, your doctor or midwife will instruct you to stop pushing to allow the baby’s head to birth through the vaginal opening slowly. When instructed to stop pushing, relax and blow lightly to prevent pushing.
9. Enjoy your baby!

## Back Labor



The most common presenting position of a baby during labor is in the vertex (head down) and anterior (occiput, or back of head, toward maternal pubic bone) position. In as many as 20% of labors, however, the infant may present in the vertex and posterior (occiput, or back of head, toward the maternal tailbone-sacrum and coccyx bones) position. In this posterior presentation, the mother experiences great back pressures radiating from the back forward abdominally with each contraction. Due to the extension of the infant's head in this position, and because of the diameter of the cranium which the baby is presenting, the infant's station tends to remain higher longer thus prolonging the progress of labor.

Most posterior presenting babies rotate to the anterior position in late first stage, or second stage, labor so that they are born in an anterior and more common position.

Following are useful comfort measures which may be helpful for the laboring woman experiencing back labor. Some techniques may help to rotate the baby from posterior to anterior position.

### Positioning

To keep the baby's weight off of the maternal uterus and back:

1. Left or right side-lying.
2. Hands and knees pelvic tilt.
3. Tailor sit with the upper torso leaning somewhat forward.

4. Sitting on the side of the bed with the arms and upper torso over the pulled-up bedside table.
5. Leaning forward on a backwards-straddled chair.
6. Leaning forward while standing with the mother's arms reaching upward and around the coach's neck, and the coach's arms are around the mother reaching to the small of her back to give counter-pressure or massage.
7. Sitting on the toilet and leaning forward.
8. Positioned on the side toward which the baby is turning which may speed rotation.

### **Counter-pressure**

Firm external pressure against the internal pressure of the fetus' head to the mother's sacrum and coccyx with uterine contractions:

1. Lower back pressure or massage by the coach to the woman's tailbone area (where the "fork-in-the-road" area is).
2. Firm pressure applied with flat of hand; padded first in a kitchen mitt; tennis balls; soda can; Tupperware (hollow, fillable) rolling pin; small paint roller; wooden back massager; etc.
3. Interchange temperature with constant counter-pressure to decrease nervous interpretation of pain. Example: Apply initial counter-pressure with a crushed ice compress or Blue Ice compress for approximately 30 minutes; then 30 minutes of counter-pressure with no hot or cold; 30 minutes of counter-pressure with a warm compress to the back; then an additional 30 minutes of counter-pressure with no hot or cold; repeat the cycle.
4. Use powder or lotion for massage to reduce friction.

### **Emotional Support and Encouragement**

1. Give constant, positive encouragement and praise as this is usually a longer, harder labor than if the infant were in the anterior position. Remind the laboring woman to focus on only one contraction at a time.
2. The coach can expect to give constant, external counter-pressure.
3. Remind the laboring woman to reposition herself regularly for comfort. Maternal repositioning may have the added benefit of encouraging a

position change by the fetus from posterior to anterior thus alleviating the woman's back pain with each contraction.

## **Induction and Augmentation of Labor**

### **Definitions**

#### **Induction of Labor**

The induction of labor is the artificial initiation of labor through either mechanical means or, more commonly, the use of medication.

#### **Augmentation of Labor**

The augmentation of labor is the artificial stimulation of an already established labor through either mechanical means or, more commonly, the use of medication.

### **Reasons for Induction or Augmentation of Labor**

#### **Reasons**

1. Prolonged rupture of membranes without ensuing contractions (usually after 6 hours).
2. Postmaturity or prolonged pregnancy (41+ weeks pregnant without ensuing spontaneous labor).
3. Medical complications such as with PIH (pregnancy-induced-hypertension).
4. To initiate preterm delivery in truly diabetic women.
5. Non-progressive or prolonged labors.
6. Convenience

#### **Concerns**

1. Increased possibility of infection after 24 hours with ruptured membranes.
2. Concerns regarding aging placenta and its ability to transfer nutrients and oxygen optimally to the fetus.
3. To decrease the possibility of fetal compromise secondary to medical complications.
4. To decrease possibility of PIH, certain infections, macrosomia (large body size), birth injury, and/or fetal death.
5. To decrease the possibility of fetal compromise and maternal exhaustion.
6. In the treatment of multigravid women with a history of precipitous (rapid) labors and who live a long distance from the hospital.

### **Types of Induction and Augmentation**

#### **“Stripping the Membranes”**

The physician inserts a finger through the soft, dilatable cervix at term and pushes the fetal membranes (amniotic sac) off the uterine wall in and around the cervix. This

procedure may cause a release of prostaglandins (hormones which influence labor). This is known as the “Ferguson Reflex”.

This method of induction may be appropriately used in a woman who is at term and who has an inducible cervix.

### **Amniotomy or Artificial Rupture of the Membranes**

An amnihook (sterile, plastic instrument that looks somewhat like an elongated crochet hook) is inserted with the physician’s fingers into the vagina. A tear is made in the amniotic membranes with the amnihook. The fetal head must be engaged and, usually, the cervix should already be 3-4 cm. dilated.

This method is not commonly used for induction of labor although it is often used in the augmentation of labor.

### **Pitocin Drip (“Pit Drip”)**

A mainline IV of plain intravenous solution is established. A secondary IV intravenous solution mixed with natural oxytocin (Pitocin) or synthetic oxytocin (Syntocinon) is piggyback onto the mainline IV. The tubing of the secondary IV is placed through an infusion pump. By way of the infusion pump the quantity of oxytocin (Pitocin) allowed to enter the woman’s bloodstream is regulated. Incrementally over time the infusion rate is increased until labor contractions are typically 2 ½-4 minutes apart, last at least 50-60 seconds, and result in intrauterine pressures of 50-75 mm Hg.

During a Pitocin-induced or augmented labor, the woman must be attached to the electronic fetal monitor continuously in order to assess the frequency and duration of contractions. Also assessed is fetal well-being in response to a Pitocin-regulated labor.

An induced or augmented labor is different than a spontaneous labor. The latent phase of labor is reduced or eliminated. The mother does not go through a slow, progressive buildup of contractions. Once Pitocin is administered and takes effect, contractions of good strength, length and frequency occur. The opportunity to accustom oneself gradually to the contractions of active labor may be by-passed. Consequently, labor may seem more difficult. These strong contractions may or may not produce a change in the cervix right away.

This method is commonly used to induce and/or augment labors.

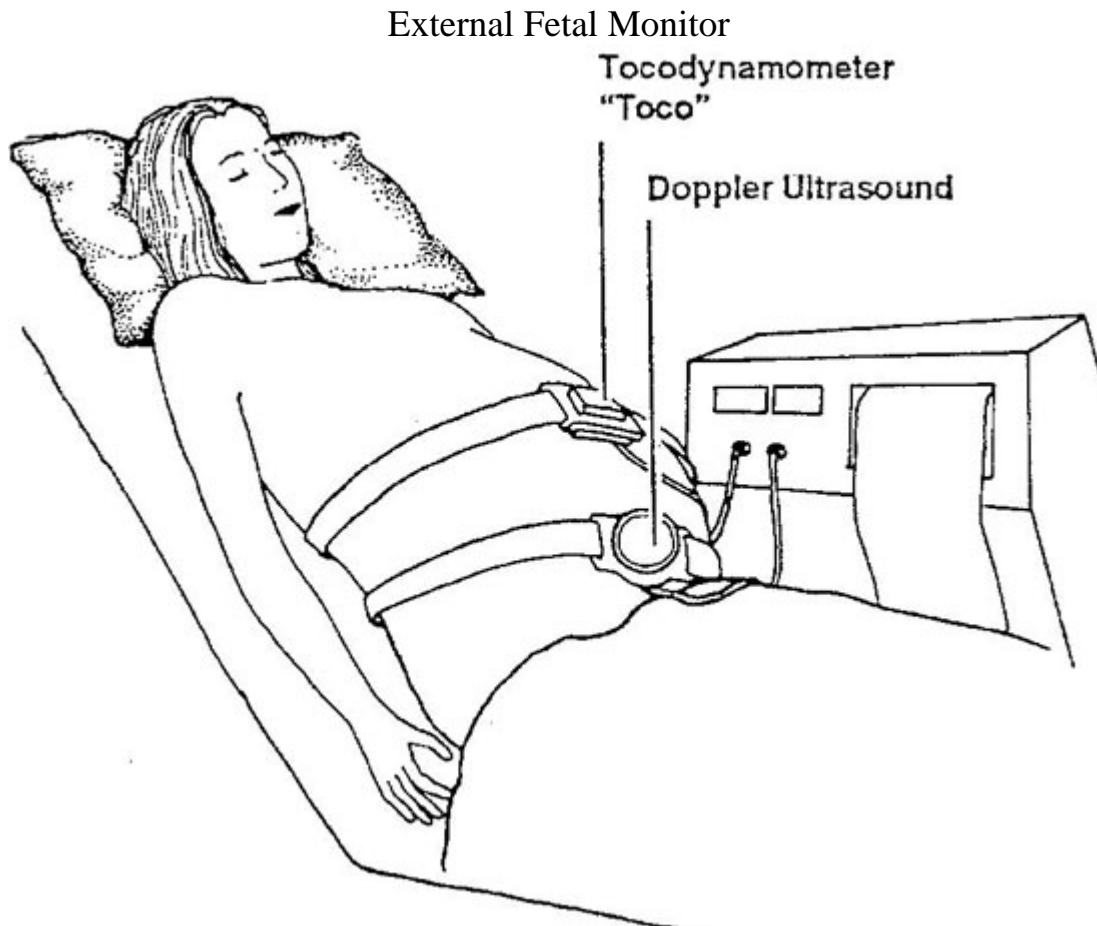
## **Electronic Fetal Monitoring**

Electronic fetal monitors were originally developed to assist the obstetrical staff in evaluating how the complications of high risk labor (such as PIH-pregnancy induced hypertension, bleeding, early rupture of membranes without ensuing labor, etc.) impacted on the fetus' tolerance of labor. EFMs are now commonly used to assess the fetus in virtually all labors. Prior to the introduction of electronic fetal monitors, fetal monitoring was accomplished by a nurse or physician listening to the fetal heart rate with a fetoscope or a Doppler while feeling the intensity of the contractions with his or her hands.

The main goal of any form of fetal monitoring is to assess fetal well-being in response to the stress of labor. The advantage of assessing fetal well-being is the ability to detect and prevent problems in their earliest stages when appropriate interventions can be the most advantageous for the mother and baby

Continuous electronic fetal monitoring is used routinely by most doctors and hospitals for their laboring patients. Some physicians, however, may choose to allow intermittent fetal monitoring throughout labor with select patients. This provides more freedom of movement for the woman in labor.

There are two methods of acquiring information via the electronic fetal monitoring: External Monitoring and Internal Monitoring.

**Tocodynamometer (Toco)**

A belt is placed around the woman's abdomen to which is attached a pressure sensitive device "Toco"- that detects uterine contractions.

**Indications For Use:**

- Patient in labor.
- Patient in preterm labor.
- With (fetal) stress testing: NST; OCT; CST.
- To assess the uterine muscle response to Pitocin induction or augmentation.

**Advantages/Benefits:**

- Able to assess the frequency and duration of contractions.
- Non-invasive.
- Visually indicated onset of uterine contractions so laboring woman may begin relaxation and breathing techniques.

**Disadvantages/Risks:**

- Unable to accurately assess the intensity of uterine contractions.

- May require readjustments due to the woman's movements, the belt slipping, etc.
- Restricts the woman's movements and ability to use effleurage.
- May be less accurate than internal monitoring device.

**Doppler Ultrasound**

A belt is placed around the woman's abdomen to which is attached an ultrasound device—a Doppler which measures the fetal heart rate.

**Indications For Use:**

- Patient in labor.
- Patient in preterm labor.
- With (fetal) stress testing: NST; OCT; CST.
- To assess well-being of the fetus with Pitocin induction or augmentation.

**Advantages/Benefits:**

- Able to assess fetal well-being by observing fetal heart rate in relation to uterine contractions.
- Non-invasive.

**Disadvantages/Risks:**

- May be less accurate than internal monitoring device.
- May require readjustments due to the woman's movements, the belt slipping, or baby's movements.

**Telemetry Unit**

A small hand-held radio-sized unit worn by a strap around the woman's neck and connected to two external abdominal belts with a toco and doppler attached.

**Indications For Use:**

- Same as for Tocodynamometer and Doppler Ultrasound

**Advantages/Benefits:**

- Same as for Tocodynamometer and Doppler Ultrasound
- Freedom of movement for the woman during labor as she may walk about and move freely within a specified area from the remote station receiving the signal from the telemetry unit.

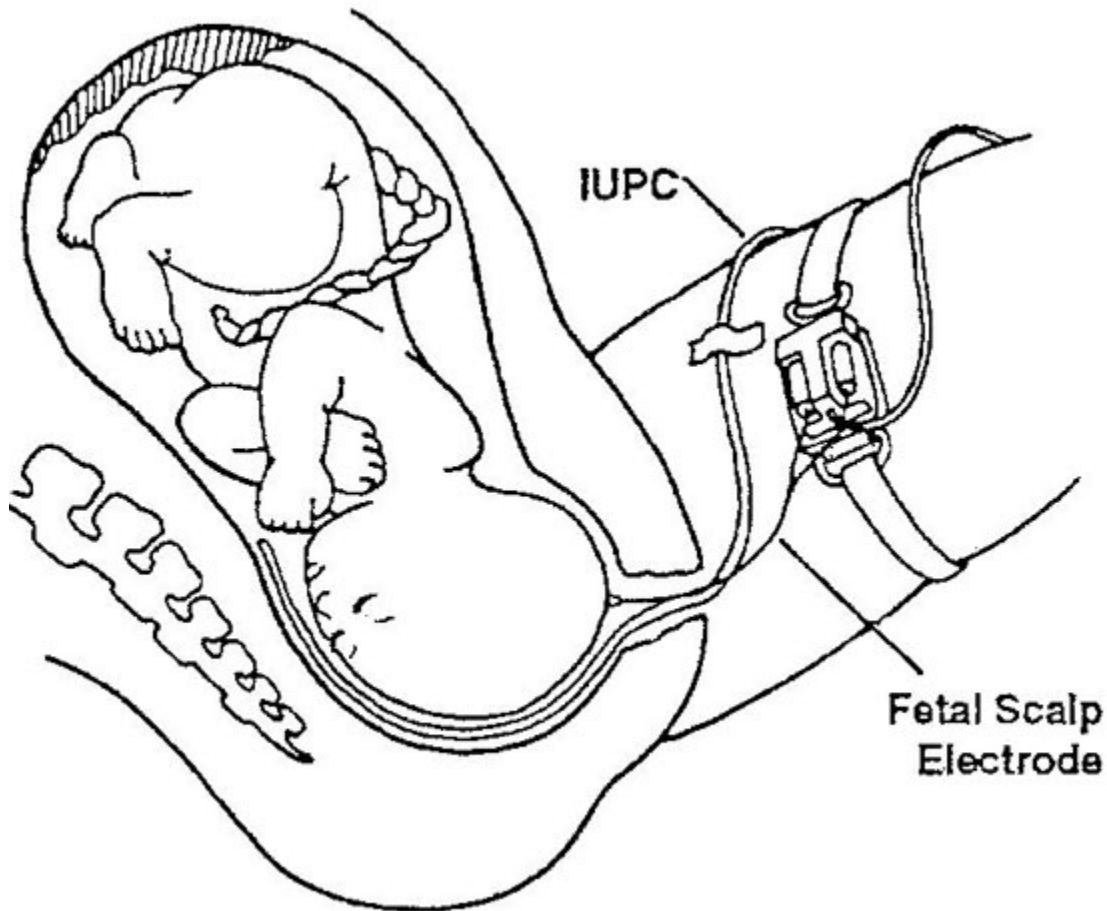
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**Disadvantages/Risks:**

- Same as for Tocodynamometer and Doppler Ultrasound



## Internal Fetal Monitoring



### Intrauterine Pressure Catheter (IUPC)

A pressure-sensitive catheter which is passed through the vagina into the uterus. When contractions occur, the changes in intrauterine pressure is translated via the changes in the sterile water column in one type of IUPC, or in the microchip in the head of another type of IUPC. This information is then measured and recorded.

#### Indications For Use:

High risk labors requiring accurate data.

#### Advantages/Benefits:

Assesses frequency, duration and intensity of uterine contractions.  
Visually indicates onset of uterine contractions so the laboring woman may begin relaxation and breathing techniques.

#### Disadvantages/Risks:

Invasive  
Requires rupture of membranes

Restricts movement because the catheter may be displaced by the woman's movements. Cannot get up to use bathroom because gravity causes the catheter to fall out of position.  
Possibility (rare) of introducing infection.

### **Internal Fetal Monitor**

#### **Fetal Scalp Electrode**

An electrode is passed through the vagina and is attached by a thin spiral wire to the fetal scalp skin. The electrode detects the electrical signal of the fetal heart rate and sends it to the EFM where it is recorded.

#### Indications For Use:

High risk labors requiring accurate data.  
When the external tracing is difficult to interpret.  
Convenience.

#### Advantages/Benefits:

Able to assess fetal well-being by observing fetal rate in relation to the uterine contractions.  
Signal usually unaffected by the woman's movements or the baby's movements.  
More accurate tracing of fetal heart rate.

#### Disadvantages/Risks:

Invasive.  
Requires rupture of membranes.  
Possibility of introducing infection.  
Possibility of attaching scalp electrode to inappropriate site.

## **Cesarean Birth**

Cesarean birth is the delivery of a fetus by way of an incision through the woman's abdominal wall and uterus. The goal of a Cesarean delivery is to preserve the life and/or health of the mother, the fetus, or both.

#### **Elective Cesarean**

An elective Cesarean is a planned Cesarean birth most commonly due to previously known conditions such as:

- \* Previous Cesarean delivery
- \* Breech or Other Malpresentation
- \* CPD (Cephalo-Pelvic Disproportion)

- \* PIH (Pregnancy-Induced Hypertension) Toxemia
- \* Placenta Previa
- \* Abruptio Placenta
- \* Herpes Type 2 Infection
- \* Pelvic Tumors
- \* Maternal Gonorrhea
- \* Maternal Insulin-Dependent Diabetes
- \* Maternal complications which might be exacerbated by labor and delivery

**Unplanned Cesarean**

An unplanned Cesarean birth most commonly occurs due to the following factors:

- \* Fetal Distress
- \* Failure to Progress  
Failure to dilate in labor  
Failure of the fetus to descend after 2+ hours of 2<sup>nd</sup> stage pushing (bearing down efforts) without regional anesthesia.
- \* CPD (Cephalo-Pelvic Disproportion)
- \* Breech or Other Malpresentation
- \* Placenta Previa
- \* Abruptio Placenta
- \* Cord Prolapse
- \* PIH (Pregnancy-Induced Hypertension) Toxemia
- \* Maternal Fever

**Pre-Operative Preparation****Consents**

The woman must sign a consent for the Cesarean delivery and anesthesia. Some hospitals may also require a consent to be signed allowing the woman's coach to be present in the Cesarean delivery room.

**History and Physical**

A history form is completed by the RN and a physical form is completed by the MD.

**Laboratory Tests**

Blood is drawn and sent to the laboratory for a routine CBC hematocrit and hemoglobin levels, bleeding times, etc. Urine is also sent to the lab for a routine urinalysis, protein and sugar levels, etc.

**Ultrasound**

An ultrasound may be ordered to ascertain the fetal presenting part, quantity of amniotic fluid, location of placenta, approximate fetal age, etc.

**Enema**

An enema is administered to evacuate and cleanse the lower bowel.

**Prep**

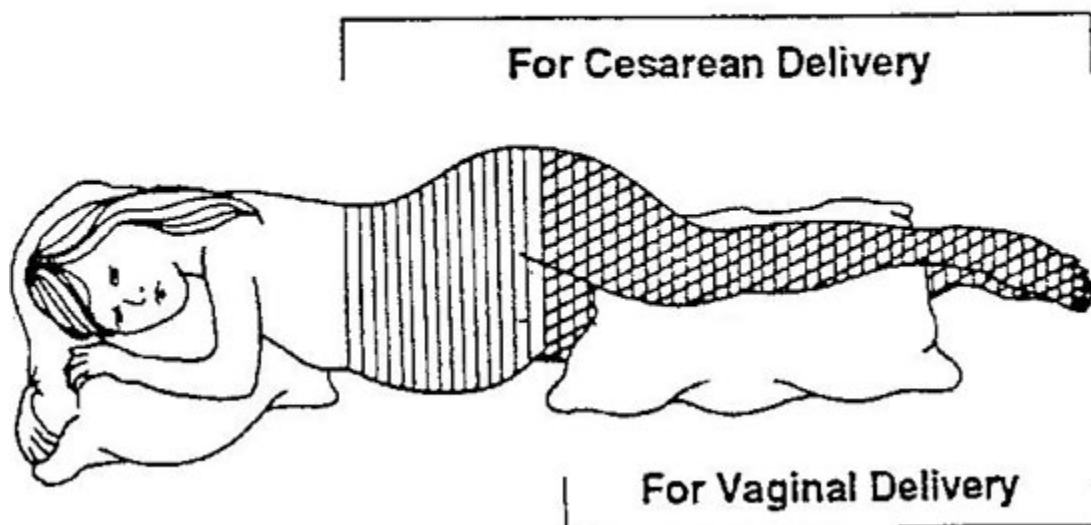
The prep is an abdominal shave which removes body hair from approximately the level of the woman's navel to the pubic hair above and around the pubis.

**IV (Intravenous)**

An intravenous line is established for the infusion of fluids and medications.

**Catheter**

Insertion of a urinary catheter into the bladder allows the constant draining of urine from the bladder and the reduction of its size or volume.

**Cesarean Birth-Operative Procedures and Recovery****Areas of Anesthesia**

**Regional Anesthesia**

Anesthesia which numbs a region of the body usually without loss of consciousness.

Spinal Anesthesia-A regional anesthetic which numbs the body from the chest to the toes. Spinal anesthesia blocks sensory (pain) nerves and motor (movement) nerves.

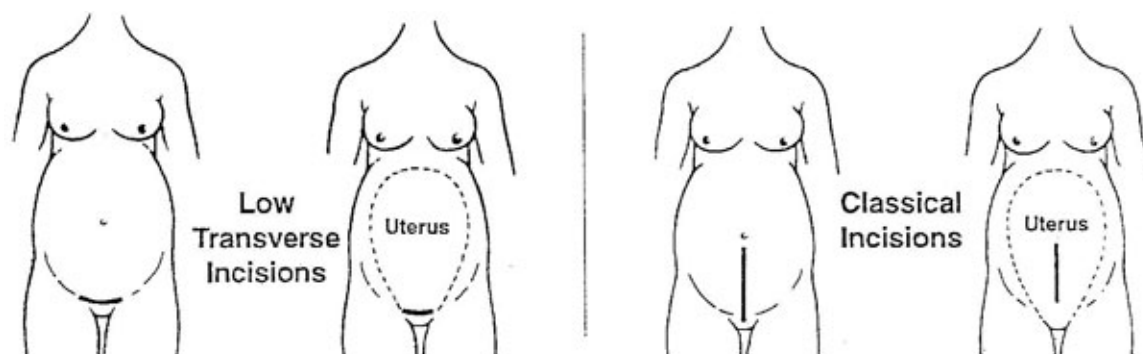
Epidural Anesthesia-A regional anesthesia which numbs the body from the chest to the toes. Epidural anesthesia blocks sensory (pain) nerves and decreases transmission by the motor (movement) nerves.

**General Anesthesia**

Complete absence of sensation with loss of consciousness.

**Sterile Drape**

A sterile drape is placed completely over the woman's body and positioned as a visual and physical barrier to the surgery at the level of the woman's chest.

**Incisions****Cesarean Incisions**

The incision on the abdominal wall may not reflect, or match, the incision on the uterus. For the sake of this discussion, however, we will assume that the two incisions correspond to one another.

**Bikini Cut (Pfannenstiel) and Low Transverse Incision**

The skin incision is a horizontal incision through the low abdominal wall at the first skin crease under the pubic hair line. The uterine incision is a horizontal incision through the lower uterine segment.

**Midline Skin and Classical Incision**

The skin incision is a vertical incision through the abdominal wall between the umbilicus and the pubis. The uterine incision is a vertical incision through either the mid-segment of the uterus or the lower segment of the uterus.

**Length of Surgery**

From the time that the surgical delivery commences, the fetus is usually delivered in less than 5 minutes. After that it can take from 30-55 minutes to suture the various tissue layers, apply sterile dressings to the abdominal wound, clean the patient, and transfer her to the recovery room for observation. During the immediate post-delivery time, but prior to the woman being transferred to the recovery room, the new mother will usually have an opportunity to see and touch her baby. The infant is usually accompanied to the nursery by the pediatrician and the woman's coach.

**Recovery Room**

Most Cesarean patients stay in the recovery room for 1-2 hours. During this time the patient is assessed for stability of vital signs, fundal firmness, lochia flow, and level of anesthesia. Once the patient is determined to be stable, TED hose (support stockings) are put on her legs to facilitate blood return to the heart and to reduce the possibility of blood clots, and her peri pads are changed. The woman is then transferred to her postpartum room.

**Hospital Stay**

After a Cesarean delivery, the new mother can expect to stay in the hospital anywhere from 2-4 days, barring complications. Breastfeeding can usually be initiated immediately upon presentation of the infant to the new mother in her postpartum room. The urinary catheter is usually removed the day after the delivery. The intravenous (IV) is usually removed once the woman is taking oral fluids adequately and resumes a normal diet. The new mother will be encouraged by the nurses to get out of bed and become mobile in small increments as soon as possible to reduce post-surgical complications and abdominal gas pains.

**Cesarean Birth Options**

Following is a short list of options which the woman and her coach may request of her obstetrician, anesthesiologist, pediatrician and/or nurses in the event of a Cesarean birth. As there are options, it is understood that these requests may or may not be granted upon the condition of the mother, the baby, or both.

- \* Coach present for delivery
- \* Type of anesthesia: Regional or general.
- \* Type of incision: Bikini/low segment or classical.
- \* Mother may wear glasses during delivery.
- \* Doctor speaking to the patient in general terms during delivery, not having discussions with colleagues while ignoring presence of the new mother.
- \* Possibility of the physician dropping the drape so that the mother may see the baby delivered as the anesthesiologist props the woman's head up.

- \* Mother may see and touch the new baby prior to its leaving the delivery room for the nursery.
- \* A private room for the postpartum hospital stay. If a shared room is provided, request a Cesarean roommate.

### **Cesarean Considerations**

A Cesarean delivery is major abdominal surgery with increased risks of infection, bleeding, anesthesia complications, and maternal mortality two to four times greater than that for a vaginal delivery.

The Cesarean delivery rate in the United States is approximately 25%.

More than one-third of these Cesarean deliveries are for repeat Cesareans. ACOG (The American College of Obstetricians and Gynecologists) recommends a trial of labor and VBAC (vaginal birth after Cesarean) for most of these women when an identified indication for repeat surgery does not exist.

The possibility of rupture of the uterine scar is less than 0.25% now that most incisions on the uterus are low and horizontal. Consequently, a woman who has had a previous Cesarean delivery is not required to have a repeat Cesarean delivery unless a documented medical condition exists and warrants it.

Seven out of ten women who have had a Cesarean delivery for “failure to progress” in one labor have had successful trials of labor and vaginal deliveries with a subsequent pregnancy.

Overdiagnosis of fetal distress, routine repeat Cesarean deliveries, and overdiagnosis of “failure to progress” are the three most common medical causes contributing to the increase in Cesarean deliveries.

A Cesarean delivery can cost as much as twice that of a vaginal delivery.

Documentation shows that women with private insurance, who have higher educational levels, are older, are married, and are in a higher socio-economic bracket are more likely to have a Cesarean delivery.

Hospitals which have initiated programs delineating rules as to when a Cesarean may be performed, and follow-up evaluation of each Cesarean, have decreased their Cesarean delivery rate.

## **Analgesia and Anesthesia**

### **Medications**

#### **Analgesic**

Any drug or agent that will reduce or relieve pain.

#### **Considerations**

The administration of analgesics or anesthetics in labor should take into consideration the following factors:

- \* The preparation, training and practice prior to labor of the pregnant woman and her coach. This includes the woman's understanding of the normal processes of labor and of her ability to utilize coping strategies.
- \* The woman's support network prior to and during labor.
- \* The pregnant woman's level of pain tolerance or threshold. This includes the individual woman's response to the length of labor and to the strength of her contractions.

### **Systemic Medications**

#### **Tranquilizers**

In labor, these medications are most commonly given in combination with analgesics to potentiate (increase) the effect of the narcotics.

#### **Form**

Usually IM injection or IV push.

#### **Examples**

Largon, Vistaril, Phenergan, Valium, Librium, Compazine.

#### **Time**

Onset in 15-20 minutes. Lasts 3-4 hours in the mother. Fetal cord blood levels are 95-100% for most of these drugs.

#### **Benefits/Purposes**

To reduce tension and anxiety and promote relaxation.

May raise maternal pain threshold by altering attitude towards pain.

May reduce nausea and vomiting due to antiemetic effects.



Potentiates effect of narcotics.

**Risks/Disadvantages**

May cause drowsiness, confusion, dizziness, blurred vision, dry mouth, heart rate and blood pressure changes, or urinary retention in the laboring woman.

Possible fetal risks include variations in fetal heart tones, lowered body temperature, poor muscle tone, increased jaundice, restlessness, decreased attentiveness, poor sucking ability and slow adaptation to feeding.

**Anesthesia**

Partial or complete absence of sensation with or without loss of consciousness.

- \* Certain phases or stages of labor may contraindicate the use of particular pain relief methods (e.g., narcotics are usually withheld in late transition labor due to their possible fetal depressant effect).
- \* The condition of certain infants may cause them to be more sensitive to the effects of medications (e.g, preterm or small-for-gestational-age infants).
- \* The administration and use of certain medications requires special equipment and/or personnel to be present and available in the labor and delivery unit at all times.
- \* Certain procedures (e.g., forceps or Cesarean deliveries) require anesthesia for the mother's comfort.

**Narcotic Analgesics**

These medications may be administered during active labor and may be combined with tranquilizers to potentiate (increase) their action.

**Form**

IM injection or IV.

**Examples**

Demerol, Morphine, Stadol, Nubain, Codeine, Dilaudid, Talwin, Sublimaze, Fentanyl.

**Time**

Onset in 5-20 minutes. Lasts 1-4 hours in the mother. Fetal cord blood levels for Demerol is 80-130%; for Talwin it is 40-70%.

**Benefits/Purposes**

Narcotics help to reduce, abolish, or alter the maternal perception of pain without loss of consciousness.

In labor they may promote relaxation between contractions and increase the feelings of comfort and control during contractions.

They may be administered during a Cesarean delivery or post-partum.

**Risks/Disadvantages**

If given too early in the labor, narcotics may slow labor progress.

Maternal side effects include dizziness, dry mouth, euphoria, nausea, slowed respiratory rate, lowered blood pressure, difficulty with concentration and the ability to focus on breathing patterns.

Analgesics may depress the infant's respirations and may alter the newborn's behavioral responses for several days or weeks.

**Narcotic Antagonists**

These drugs are given when there is a need to reverse the effects of a narcotic analgesic.

**Form**

IM injection or IV push to the mother. IM injection into the umbilical vein of the baby.

**Examples**

Narcan, Nalline, Lorfan.

**Time**

Within 2-5 minutes

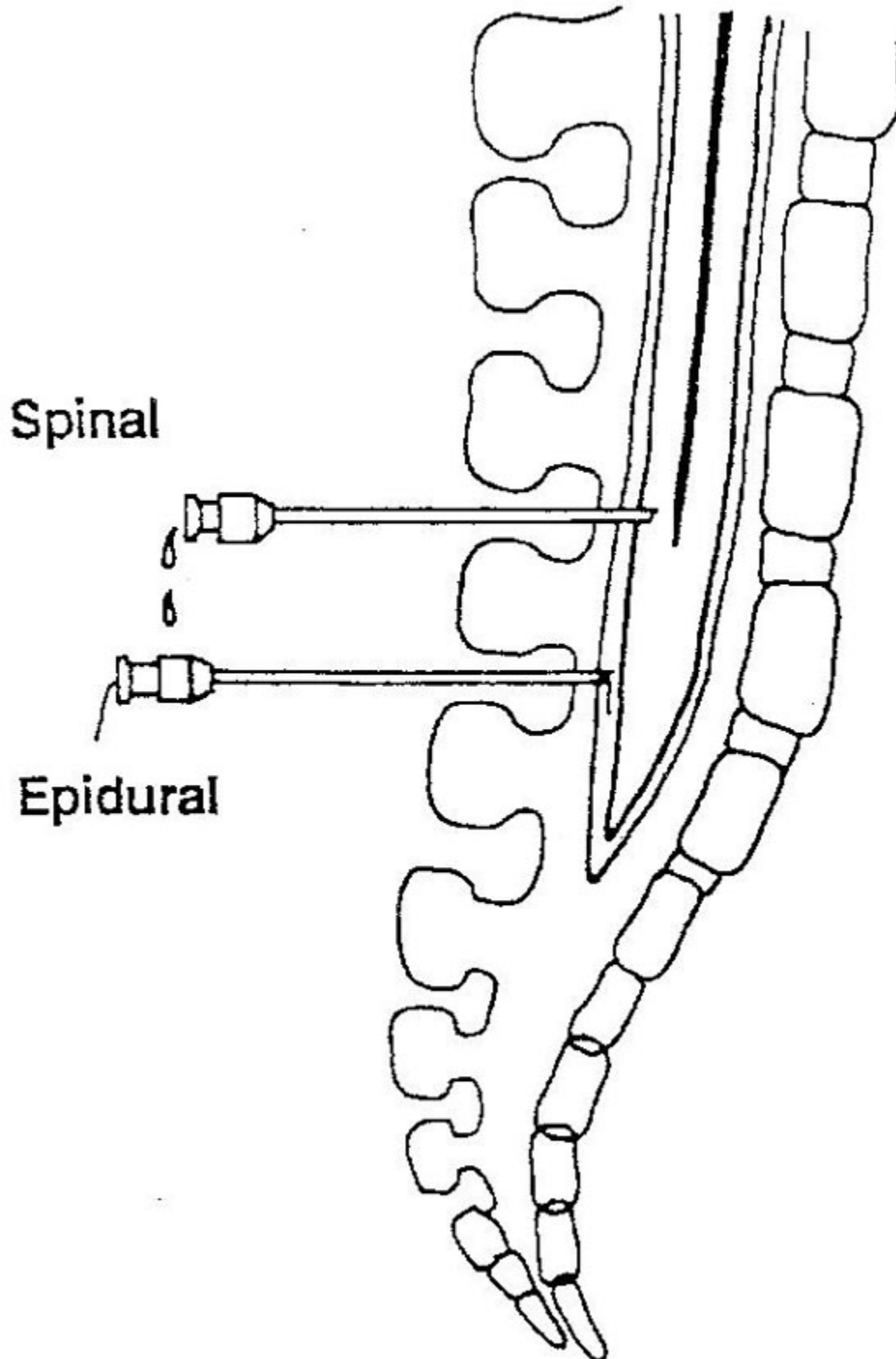
**Benefits/Purposes**

To reverse respiratory depression or other side effects caused by narcotic analgesics.

**Risks/Disadvantages**

There do not appear to be side effects to the mother. Little is known about the long term effects to the newborn.

**Regional Anesthesia**



**Spinal Block/Saddle Block**

A spinal/saddle block provides anesthesia during second stage labor for a vaginal delivery (as with forceps) or for a Cesarean delivery. An anesthetic agent is injected directly into the spinal fluid in the spinal canal. A spinal/saddle block is administered with the mother either lying curled on her side or sitting up in a curled knee-chest position.

**Takes Effect In**

3-5 minutes.

**Examples**

Pontocaine, Pentothal.

**Area Affected**

Spinal Block: From the breast level to the toes.

Saddle Block: The inner thighs, perineum and buttocks.

**May Be Given At**

Second stage labor.

**Effects May Last For**

1.5-2 hours.

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**Benefits/Purposes**

Spinal anesthesia is used to achieve anesthesia for a Cesarean delivery.

Saddle block may be chosen to provide anesthesia for a forceps delivery.

Nearly 100% receive good anesthesia.

**Risks/Disadvantages**

Possible drop in maternal blood pressure (greater than with epidural anesthesia).

Loss of urge to push.

May have difficulty in urinating afterwards necessitating catheterization.

Possible "spinal headache" afterwards. Patients are required to lie flat for 12 hours after administration of a spinal or saddle block to reduce incidence of "spinal headaches". If a "spinal headache" occurs-which is thought to be due to leakage of spinal fluid-it may be treated with a blood patch procedure whereby 10cc of maternal blood is injected into the epidural space. The ensuing blood clot applies pressure and seals the leak. Success of this treatment ranges from 91-100%.

**Epidural Block**

An anesthetic agent is introduced between the 4<sup>th</sup> and 5<sup>th</sup> lumbar vertebrae and into the epidural space. The epidural space is between two membranes which are outside the spinal canal. The epidural medication does not mix with the spinal fluid.

The epidural block may be given as a single injection or a small plastic catheter may be left in the epidural space to allow for additional single doses or a continuous infusion of the anesthetic agent.

**Takes Effect In**

3-20 minutes

**Examples**

Bupivacaine, Marcaine, Lidocaine, Fentanyl and/or Sufenta.

**Area affected**

Waist to knees, or below the ribs to the toes.

**May Be Given At**

During active labor-after 3 to 4 centimeters-and through delivery. During second stage labor only. Prior to and during Cesarean delivery.

**Effects May Last For**

1.5-2 hours.

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**Benefits/Purposes**

Usually gives good pain relief for uterine contractions, birth and repair.

Little medication reaches the baby.

Does not make the woman drowsy.

May be anesthesia of choice for an instrument (forceps) delivery.

**Risks/Disadvantages**

May slow down or prolong labor if given too early in labor. The woman's inability to move around and/or ambulate and to make use of gravity may also slow down labor progress.

May require use of Pitocin augmentation to stimulate a sluggish labor.

Woman must remain in bed as she cannot walk about or use the bathroom.

Will probably require intermittent or continuous urinary catheterization during labor, and for a short time after delivery and termination of the epidural.

Must have continuous intravenous fluids and electronic fetal monitoring.

May cause a drop in the maternal blood pressure affecting circulation and oxygenation to the placenta and fetus.

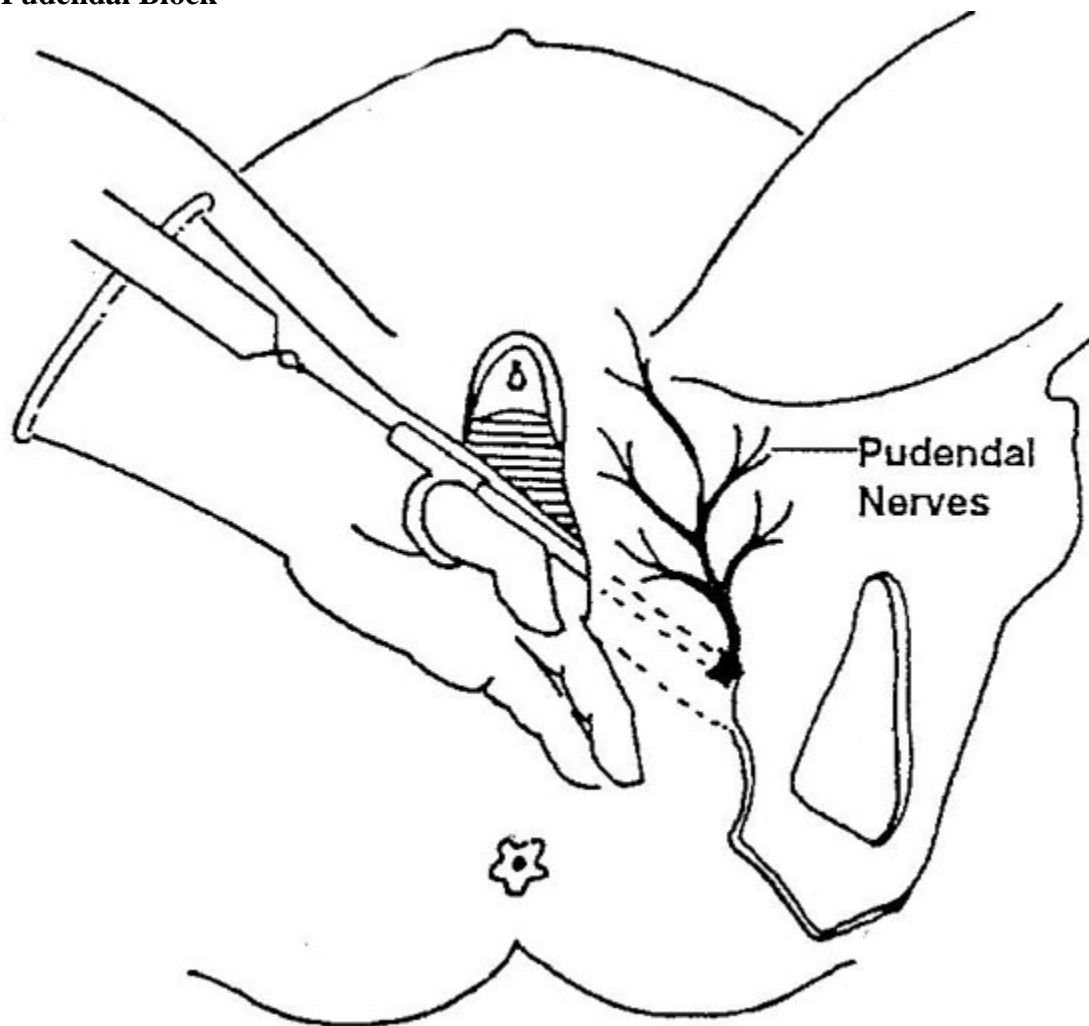
Must have frequent blood pressure readings taken to assure stability of maternal blood pressure.

Diminishes urge to push and bearing-down reflex which may prolong 2<sup>nd</sup> stage labor. This may also increase the use of fundal-pressure, vacuum extractor or forceps to accomplish delivery.

Woman is totally dependent upon her coach and support personnel for her basic physical needs.

Requires an anesthesiologist to administer who must also remain in the labor and delivery unit as long as a patient has an epidural.

Not cheap.

**Pudendal Block**

Inside the vaginal vault an anesthetic agent is injected via the pudendal nerve trunks near the ischial spines. The pudendal nerve supply the perineal muscles, the perianal region, the urethral sphincter, and the vulvar region.

**Takes Effect In**

2-3 minutes.

**Examples**

Xylocaine/Lidocaine, Nesacaine.

**Area Affected**

Vaginal and Perineum

**May Be Given At**

Second stage labor.

**Effects May Last For**

One hour.

**Benefits/Purposes**

Anesthetizes the vulva, birth canal, and perineum and is used for vaginal delivery, episiotomy and repair.

Effective anesthesia for low forceps delivery.

**Risks/Disadvantages**

Maternal relief is achieved for a perineal distention but not from uterine contractions.

May eliminate the urge to bear down during second stage labor but the woman may still be able to push effectively with appropriate coaching.

Possible fetal depression with large doses administered too far in advance of delivery.

**Local Anesthesia**

An injection is given into the tissues of the perineum just prior to delivery of the infant, or after the birth, for repair of the episiotomy.

**Takes Effect In**

2-5 minutes.

**Examples**

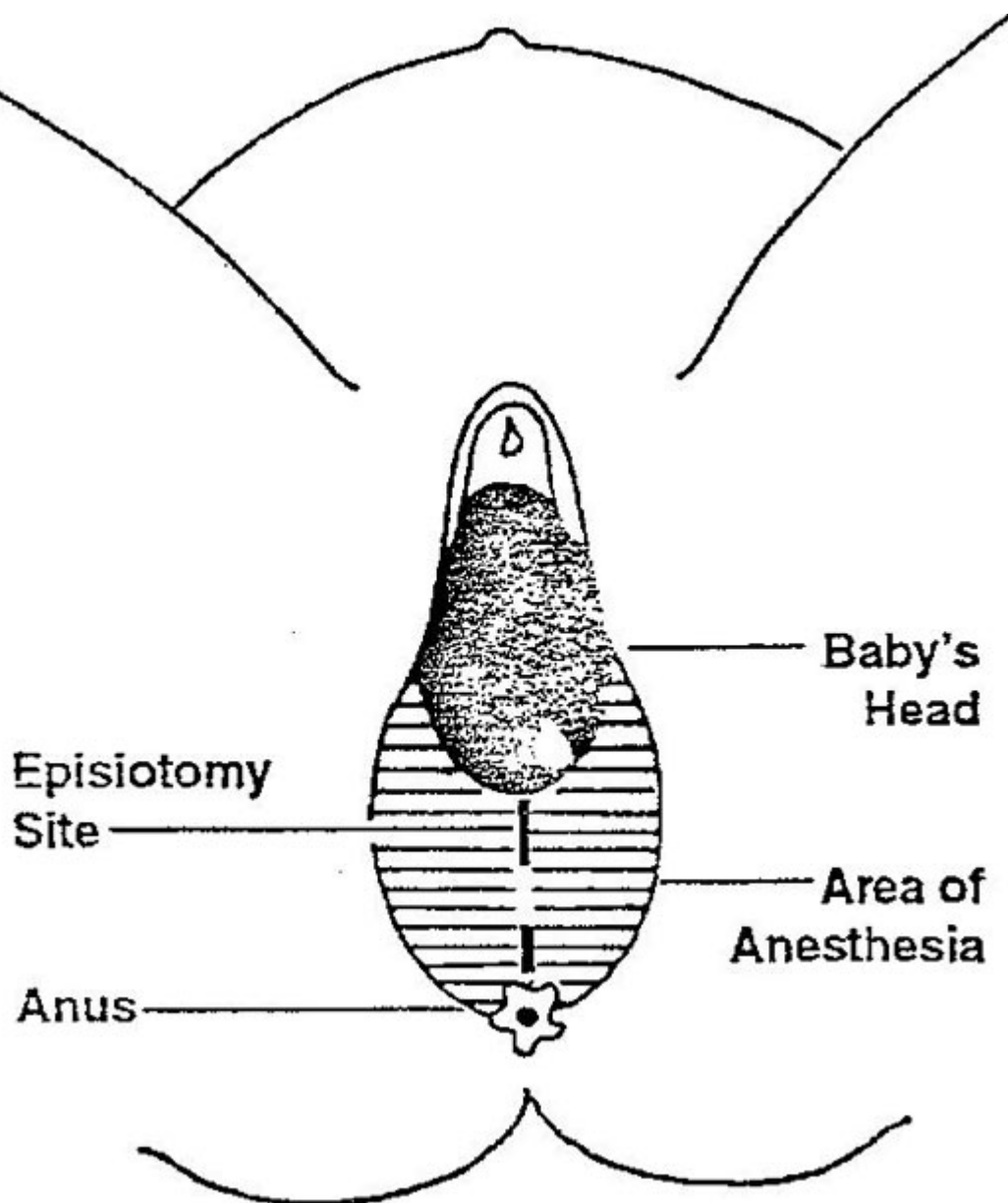
Xylocaine/Lidocaine, Nesacaine.

**Area Affected**

The perineum eliminating the sensation of “burning and stretching” with the crowning of the infant’s head at the vaginal opening.



### Local Anesthesia



**May Be Given At**  
Second or third stage labor.

**Effect May Last For**  
20 minutes

**Benefits/Purposes**

Numbs perineum for episiotomy repair (suturing). (Note: The “local” is not required for episiotomy pain relief as the stretching of the perineal tissues and pressure from the fetal head on the perineal nerves create a temporary, natural anesthesia).

**Risks/Disadvantages**

Woman may feel stinging upon administration of medication.

Infant may have decreased muscle tone if medication is administered too long prior to delivery.

**General Anesthesia**

General anesthesia induces an unconscious state which eliminates awareness of pain and the delivery experience. General anesthesia is used only for delivery. Its use is indicated when certain complications arise and rapid anesthesia is desirable such as for a true emergency Cesarean delivery or when there is a threat of unusual maternal hemorrhage.

**Method of Administration**

By introduction of IV medications such as Brevital or Pentothal, and inhalation anesthetics such as Nitrous Oxide, Penthrane or Fluothane.

**Time Of Effect and Recovery**

General anesthesia is used only when delivery is imminent as the medications cross the placenta rapidly and have the same effects on the fetus as on the mother. Recovery time varies with the type of medication and quantity used.

**Benefits/Purposes**

Gives complete body anesthesia during the operative procedure.

**Risks/Disadvantages**

Nausea and vomiting with the possibility of lung aspiration.

Cardiac and/or respiratory depression.

Postpartum uterine atony (lack of tone) increasing the possibility of postpartum hemorrhage.

Newborn infant depression directly proportional to the depth and duration of anesthesia.

Delayed maternal-infant bonding.



## **Addendum**

**Food Groups**

**Progressive Relaxation**

**Preterm Labor: Diagnosis and Treatment**

**Prelabor Readiness**

**APGAR Scoring System**

**Concepts and Terminology Quiz**

**Glossary**

**Bibliography**

## Food Groups

### Protein Foods

**Includes animal and vegetable foods a serving is 2-3 oz. cooked (boneless) of the following unless noted other otherwise.**

Bacon, 6 slices  
 Beef: ground, roast, chopped  
 Canned fish: tuna, crab, etc.  
 Cheese  
 Clams, 4 large or 9 small  
 Crab  
 Eggs, 2  
 Fish: fillet, steak  
 Fish: sticks, 4  
 Hot dogs, 2  
 Lamb: ground, roast, chopped  
 Lobster  
 Luncheon meat, 3 slices  
 Organ meats: liver, kidney, tongue  
 Oysters, 10-15 medium  
 Pork: ham, ground, roast, chopped  
 Poultry: ground, roast  
 Rabbit  
 Sausage links 4  
 Shrimp, scallops, 5-6 large  
 Spareribs, 6 medium ribs  
 Veal: ground roast, chopped

### Milk & Milk Products

A serving is 8 oz. or 1 cup unless noted otherwise.

Cheese: hard and semisoft (except blue, Camembert & cream), 1 ½ oz.  
 Cheese Spread, 2 oz.  
 Cottage Cheese, 1 1/3 cups  
 Milk: whole, nonfat, low fat, nonfat dry reconstituted, buttermilk, chocolate milk, cocoa made with milk.  
 Cream Soups made with milk, 12 oz.  
 Evaporated milk, 3 oz.  
 Goat's milk  
 Ice Cream, ½ cup

### Grains & Cereals

**Choose whole grains over enriched grain products and enriched products over non-enriched products.**

Brown rice, ½ cup  
 Cereals, hot: oatmeal, cracked wheat, etc., ½ cup.  
 Cereals, ready-to-eat: puffed oats, shredded wheat, granola, ¾ cup  
 Wheat germ, 1 tbsp.  
 Bread: 1 slice  
 Cereals, hot: cream of wheat, cream of rice, cornmeal, ½ cup  
 Cornbread, 1 piece (2" square)  
 Crackers, 4  
 Macaroni, noodles, spaghetti, cooked ½ cup  
 Muffin, biscuit, dumpling, 1  
 Pancake, 1 medium  
 Rice, cooked, ½ cup  
 Roll, bagel, 1  
 Tortilla, corn 2  
 Tortilla, flour, 1 large  
 Waffle, 1 large

### Leafy Green Vegetables

A serving is 1 cup raw or ¾ cup cooked

Asparagus  
 Broccoli  
 Brussels Sprouts  
 Cabbage  
 Dark, leafy lettuce: chicory, endive, Cow's escarole, red leaf, romaine.  
 Greens: beet, collard, kale, mustard, spinach, Swiss chard, turnip  
 Scallions  
 Watercress

Ice milk  
 Milkshake, 8 oz.  
 Puddings, custard, flan  
 Yogurt

**Vitamin-C Rich Fruits & Vegetables**

Fresh, frozen or canned forms may be used although canned products have a lower Vitamin C content.

**Juices:**

Orange, grapefruit, 4 oz.  
 Tomato, pineapple, 12 oz.  
 Fruit juices and drinks-enriched  
 With Vit. C, 6 oz.

**Fruits:**

Cantaloupe, ½  
 Grapefruit, ½  
 Guava, ¼ medium  
 Orange, 1 medium  
 Papaya, 1/3 medium  
 Strawberries, ¾ cup  
 Tangerine, 2 small

**Vegetables:**

Bok choy, ¾ cup  
 Broccoli, 1 stalk  
 Brussels sprouts, 3-4  
 Cabbage, cooked, 1 1/3 cups  
 Cabbage, raw, ¾ cup  
 Cauliflower, raw or cooked, 1 cup  
 Greens: collard, kale, mustard, Swiss  
 Chard, turnip greens, ¾ cup  
 Peppers: green, red, ½ med.  
 Tomatoes, 2 medium  
 Watercress, ¾ cup

**Other Fruits & Vegetables**

A serving size is ½ cup either fresh, frozen or canned unless noted otherwise

**Vegetables:**

Artichoke  
 Bamboo shoots  
 Bean sprouts: alfalfa, mung  
 Beet  
 Carrot  
 Cauliflower  
 Celery  
 Corn  
 Cucumber  
 Eggplant  
 Beans: green, Wax  
 Hominy  
 Lettuce: head, Boston, bib  
 Mushrooms  
 Onions  
 Parsnip  
 Peas  
 Pea Pods  
 Potato  
 Radishes  
 Summer squash  
 Sweet potato  
 Winter squash  
 Yam  
 Zucchini

**Fruits:**

Apricot, fresh, 1 large  
 Nectarine, 2 medium  
 Peach, fresh, 1 medium  
 Prunes, 4  
 Pumpkin, ¼ cup  
 Apple, 1 medium  
 Banana, 1 small  
 Berries  
 Cherries

Dates, 5  
Figs, 2 large  
Fruit cocktail  
Grapes  
Kumquats, 3  
Pear, 1 medium  
Pineapple  
Plums, 2 medium  
Raisins  
Watermelon

## **Progressive Relaxation**

Progressive relaxation is a basic tension-relaxation exercise. The goal of progressive relaxation is to increase one's awareness of the muscles when in a state of relaxation and to be actively aware of that feeling, as well as to be aware of the feeling of tension in the muscles. All relaxation techniques include the following four rules when practicing:

There should be a quiet environment.

Assume a comfortable position.

A mental device (something to mentally fix one's attention on).

A passive attitude (trying to keep focused on the mental device).

To facilitate practice, the major muscles of the body may be broken down into groups as follows:

### **Group 1-Head, Face, Throat**

Forehead-wrinkle or frown, hold, then relax, relax more.

Cheeks and Nose-squint, wrinkle nose, hold, relax, relax more.

Jaws-clench teeth, hold, relax.

Lips and Tongue-press lips, smile, tongue to roof of mouth, hold, relax, relax more.

Neck and Throat-chin to chest, hold, relax, relax more.

### **Group 2-Shoulders, Chest, Stomach**

Shoulders and Upper Back-shoulders up and back, hold, relax, relax more.

Chest-breathe deeply, hold, exhale normally, hold.

Stomach-pull in and push out.

**Group 3-Hands, Arms**

Dominant Hand and Forearm-clench fist, hold, relax, relax more.

Nondominant Hand and Forearm-same as above.

Dominant Biceps-make muscle, hold, relax, relax more.

Nondominant Biceps-same as above

**Group 4-Legs, Feet**

Thighs and Buttocks-press heels into floor, or do isometric constriction by pushing them (thighs and buttocks) together, hold, relax, relax more.

Calves-pull toes and feet upward, hold, relax, relax more.

Feet-curl toes under (but do not point feet away from body), hold, relax, relax more

**Ten Rules for Practice:**

1. Have on soothing, instrumental music in the background.
2. When first practicing the tension of a particular muscle group, tense the appropriate muscle group for a 5-7 second interval only. The only exception to this is when tensing the feet or other muscles which may have a tendency to cramp. These muscles should be tensed for only 3 seconds.
3. Use the smallest amount of tension necessary to identify each distinct muscle or group of muscles. Do not tense the muscles so hard that they hurt. One of the most common errors in this kind of practice is to attempt too much tension.
4. After the 5-7 second period of tension, actively reduce tension by quickly releasing your hold on the muscles. For a period of 20-30 seconds, spend your time consciously extending feelings of relaxation throughout your muscles. Actively think, "Relax, release", and other words that may enhance relaxation. During this phase, concentrate on the contrast between tension and relaxation focusing on relaxation. Some muscle fibers may still be tensed even when you start to feel relaxed. Relaxing is an active process of undoing tension.
5. Tension and relaxation of each muscle group should be practiced at least two times. If, after two trials there is no residual tension and your muscles feel relaxed, you may start working with the next muscle group on the list.



If tension remains, however, continue to practice the same muscle group for as many as 5 trials in a single session. Then stop and go on to the next group.

6. When you tense a muscle, try to keep the involvement of adjacent areas to a minimum. This may take much practice. Remember to focus your attention only on the muscle being practiced, even if an adjacent muscle tenses.
7. When you finish practicing all the muscles in a major group, take some time to review them and relax more fully. For instance, after you have practiced your hand and arms, spend a minute or two extending relaxation further and further. Let yourself experience even greater levels of comfort and relaxation in these muscles. After this “review break” you may start practicing the individual muscles in the next major group.
8. Throughout the relaxation phase of each procedure, let yourself enjoy the relaxing effects of inhaling and exhaling evenly and smoothly. Exhaling is the relaxation phase of the respiratory cycle. It is a beneficial feeling, so take advantage of it. As you exhale, think relaxing phrases or words such as “Calm, peaceful, serene.”
9. Practice with your eyes closed. This eliminates distractions and lets you focus your full attention on the changing sensations in each muscle.
10. It is important that you have a routine and a consistent order of practice. The order does not necessarily matter as long as it is consistent. Try to practice at least 10-15 minutes at a time and at least twice a day.

### **Preterm Labor: Diagnosis and Treatment**

Preterm labor is defined as labor which occurs after the 20<sup>th</sup> week of conception, but prior to the 37<sup>th</sup> week of gestation. It is important to manage cases of preterm labor as maturational deficiencies and/or mortality increases for infants delivered prior to the 37<sup>th</sup> week of pregnancy. It is important to support the mother in preterm labor by restricting her to bed rest, monitoring her vital signs, measuring intake and output of fluids, continuously monitoring fetal activity and/or the fetal heart rate, and, especially, uterine contractility.

**\* The signs and symptoms of preterm labor are the same as for normal labor while including the following:**

Regular, rhythmic uterine contractions

Cervical dilatation and effacement

Bloody show

Preterm rupture of membranes occurs in 20-30% of the cases of preterm labor. (No known cause of preterm rupture of membranes has been identified in 70-0% of these cases although it is suspected that sub-clinical infections of B-streptococcus may be responsible.)

\* **Some possible causative factors of preterm labor are:**

**Maternal Factors**

DES exposure

Cigarettes-more than 10/day

Second trimester abortion x 2 (major risk factor) or x 1 (minor risk factor)

More than 2 first trimester abortions

Cervix dilated >1 cm at 32 weeks

Maternal hypertension disease such as PIH/Pregnancy Induced Hypertension (high blood pressure, sudden edema or swelling, protein in the urine, and hyperreflexia)

Chronic maternal disease or disorder such as cardiovascular disease, renal disease, or diabetes

Previous preterm delivery

Previous preterm labor with term delivery

Placenta previa or abruption placenta

Incompetent cervix

Uterine abnormalities

Abdominal surgery or other abdominal trauma

History of cone biopsy

Unknown

**Fetal Factors**

Multiple gestation (twins, triplets)

Hydramnios (excessive amniotic fluid in the amniotic sac)

Fetal infections (e.g. rubella), or congenital defects

\* **Preterm labor is usually not interrupted if one or more of the following conditions are present:**

Active labor with cervical dilation of 4 centimeters or more.

Presence of severe PIH which creates a risk to the woman and the infant if the pregnancy continues.

Fetal complications (isoimmunization, gross anomalies, or fetal death).

Ruptured membranes which significantly increases the risk of uterine and fetal infection.

\* **There are several medications currently used in the treatment and prevention of preterm labor. They are as follows:**

Magnesium Sulfate – is a medication which is generally used in the treatment of prevention of seizures in PIH/Pregnancy Induced Hypertension. This medication inhibits the contractility of smooth muscles of which the uterus is composed and, therefore, it has an affect on preterm labor. Side effects of magnesium sulfate administration include a feeling of warmth, flushing, sweating, hypocalcemia, depressed cardiac function and respiratory depression. The blood vessels of magnesium sulfate are monitored regularly in patients receiving this medication.

Ritodrine (Yutopar) may be given initially by IV infusion. Once labor has ceased, Ritodrine may be continued by IM/intramuscular injection or by oral ingestion. Ritodrine also inhibits the contractability of smooth muscle: i.e., uterus.

Terbutaline Sulfate (Brethine) may be given initially by subcutaneous injection to inhibit uterine contractions. It may be continued by an oral pill maintenance dose method. These pills must be taken around the clock on an ever 4-hour, 3-hour, or 2-hour schedule. Maternal side effects include tachycardia (rapid heart beat), nervousness, tremors and/or headaches. These side effects usually subside in about a weeks time. Fetal side effects include mild tachycardia (rapid heart beat) and neonatal hypoglycemia (low blood sugar).

- \* Once a patient has been identified as being at risk for preterm labor, and that patient is being successfully managed on maintenance doses of a labor inhibiting medication, the patient may be sent home on strict bedrest. The patient's primary caregiver may also have the patient assume more responsibility for her care by insisting that the patient participate in home uterine monitoring. Home uterine monitoring entails the patient wearing a belt-like device (a tocodynamometer or "toco") around her abdomen for one hour in the morning and for one hour in the evening. The "toco" can detect uterine contractions if they are present. This information is then relayed over the telephone lines to a monitoring center where specially trained R.N.s evaluate the information received. The R.N.s consult with the patient and interpret the received information for her. The patient's primary caregiver is also given regular updates of the patient's home monitoring results by the R.N. In this way, preterm labor can be identified earlier and managed appropriately so as to increase the chances of an optimal outcome to the pregnancy.

There are common parental responses to the occurrence of preterm labor. These responses include feelings of anxiety and guilt about the possibility that something done, or not done, initiated the onset of preterm labor. There are concerns about the baby's health and possible concerns about the mother's health, if this is a factor in the onset of preterm labor. Unexpected costs associated with possible prolonged hospitalization of the mother and of the baby are concerns. Following the delivery of a premature infant, parents may find it difficult to bond with their infant if admitted to the Special Care Nursery. This may diminish the parents' ability to freely touch and spend time with their newborn. The medical equipment used in the treatment of the infant in the Special Care Nursery may cause stress and anxiety in the parents.

Many hospitals which have Special Care Nurseries or Neonatal Intensive Care Units, also have parent support groups which minister on a parent-to-parent basis to the immediate families of infants admitted to a SCU or NICU. One parent support group specifically for families experiencing preterm labor and birth is "Parents of Prematures", 13613 Northeast Twenty-Sixth Place, Bellevue, WA., 98005.

### **Pre-Labor Readiness**

Labor generally occurs between the 38<sup>th</sup> and 42<sup>nd</sup> weeks of pregnancy when the fetus has reached maximum intrauterine development. Labor is preceded by a series of complex physiological changes in the placenta, uterus, fetus and mother working in synchrony, and ultimately leading to the birth of the baby. During the last several weeks of gestation, fetal development is focused on preparing the infant for independent external life and in inducing changes that contribute to the onset of labor. Following is a synopsis of these changes:

1. The fetus gains weight at a more accelerated rate.
2. The fetus stores iron at a rapid rate, storing enough to meet its needs for the first 4-6 months of extra-uterine life.
3. Fetal temperature regulating mechanisms are developed.
4. The placental membranes become more permeable and allow maternal antibodies to cross to the fetus. These antibodies provide immunity for the newborn from some diseases during its first several months of life.
5. The fetal adrenal glands begin secreting steroid hormones which are essential for lung maturation.
6. The fetus begins producing oxytocin and prostaglandins, labor stimulating hormones, which pass from the fetus to the maternal circulation.
7. The fetus may become more or less active prior to the onset of labor.
8. The placenta begins to age in late pregnancy which may be a factor in the onset of labor.
9. The placental membrane increases its permeability to allow for the transfer of oxytocin and prostaglandins from the baby to the mother.
10. Maternal breasts increase their production of colostrum, the thin yellowish first milk. Colostrum provides antibodies, carbohydrates, fats and a high level of protein to the infant. It also has a laxative effect to cleanse the baby's intestinal tract of mucous and meconium after birth.
11. Lightening, or engagement, is the process by which the fetus moves deeper into the pelvis. Relaxation of the pelvic ligaments, as well as a softening of the lower uterine segment due to hormonal influences, allows more room for the fetus to move down. Lightening may occur 10 days to 4 weeks prior to the onset of labor in the primipara (first time mother), and just prior to labor or in labor in the multipara (woman expecting her second or subsequent baby).
12. Shortness of breath and heartburn improve when lightening occurs as there is now decreased pressure on the lungs, diaphragm and stomach.
13. When lightening occurs there is less room for bladder expansion causing more frequent urination due to the additional pressures within the pelvis.
14. Due to congestion of the vaginal mucous membranes from increased pelvic pressure, there is an increase in vaginal secretions.

15. With the increased weight of the uterus pulling on the uterine ligaments attached to the lower back, there is an increased incidence of backaches.
16. Changing estrogen and progesterone levels affect maternal fluid balance causing the mother's weight to either stabilize or to drop from 1-3 pounds.
17. Many women experience a "spurt of energy" approximately 24 hours prior to the onset of labor. It is thought that the spurt of energy is nature's way of providing extra energy for the labor, although the etiology of this phenomenon is unknown. This energy should be saved for labor and not be expended on cleaning the house or other chores.
18. Some women experience a "nesting instinct". This is when the pregnant woman becomes totally absorbed in getting everything ready for the baby, arranging the nursery, checking and rechecking that everything is just right.
19. Many women experience frequent soft bowel movements which are hormonally induced to clear the lower intestinal tract. This allows more room for the baby to move down. Diarrhea-like symptoms may be subtle signs of early labor.

## APGAR Scoring System

The APGAR Score give a quick index at 1 and 5 minutes of life of the infant's depression or lack of it at birth. This quick assessment determines the infant's need for intervention by the delivery team, if necessary. A score of 7 to 10 usually indicates an infant who is adjusting to extra uterine life with little assistance. A score of 5 to 6 indicates an infant who may need a bit of assistance with early respirations, suctioning and stimulation. A score of 4 or below usually indicates an infant in need of special resuscitative measures to make the initial adjustment to independent function.

<b>Sign</b>	<b>0</b>	<b>1</b>	<b>2</b>
<b>Heart rate</b>	Absent	Slow (below 100)	Over 100
<b>Respiratory Effort</b>	Absent	Weak cry, hypoventilation	Good strong cry
<b>Muscle Tone</b>	Limp	Some flexion of extremities	Well flexed
<b>Reflex Response</b>			
1. Response to catheter in nose	No response	Grimace	Cough or Sneeze
2. Tangential foot slap	No response	Grimace	Cry and withdrawal of foot

## Concepts and Terminology Quiz

### Matching

- |       |                                   |  |
|-------|-----------------------------------|--|
| _____ | 1. APGAR Score                    | A. Intermittent uterine contractions as the uterus “tones” itself in preparation for labor, false labor. |
| _____ | 2. Braxton-Hicks Contractions     | B. Opening of the uterus into the vagina.  |
| _____ | 3. Breech Presentation            | C. Incision in the perineum to enlarge the birth outlet.   |
| _____ | 4. Bonding                        | D. A newborn assessment score given to the newborn at 1 minute and 5 minutes of life                     |
| _____ | 5. Cervix                         | E. Delivery of the baby through an abdominal incision  |
| _____ | 6. Cesarean Birth                 | F. Thinning or shortening of the cervix  |
| _____ | 7. Coaching                       | G. Providing support, comfort, control and Communication.  |
| _____ | 8. Dilation                       | H. Feet first or buttocks first presentation of baby   |
| _____ | 9. Effacement                     | I. Phenomenon of parent-infant attachment  |
| _____ | 10. Episiotomy                    | J. Medical term for “soft spot” on the baby’s head   |
| _____ | 11. (Electronic) Fetal Monitoring | K. The process whereby the cervix gradually opens to allow the baby to come out of the uterus            |
| _____ | 12. Fontanelle                    | L. Name for the top of the uterus; area that is massaged after delivery                                  |
| _____ | 13. Fundus                        | M. The machine which records maternal uterine contractions and fetal heart rate simultaneously           |
| _____ | 14. “Kegels”                      | N. Name for a face-up presentation of the baby’s head  |
| _____ | 15. Perineum                      | O. The area of skin and muscle between the vaginal outlet and the rectum.                                |
| _____ | 16. Pitocin                       | P. Designation of the active phase of first stage labor  |
| _____ | 17. Placenta                      | Q. Pelvic floor exercises; and popular name for the muscles in the pelvic floor                          |
| _____ | 18. Posterior                     | R. Designation of the position of the baby’s head  |



	Presentation	within the maternal pelvis.
_____	19. Precipitous Birth	S. That phase of first stage labor when labor changes to expulsion; usually the hardest but shortest phase of labor
_____	20. Transition	T. The organ that nourishes the infant during the 9 months gestation; also called the “afterbirth”
_____	21. Station	U. A birth which occurs within 3 hours of the onset of labor
_____	22. 4-8 Centimeters	V. Synthetic hormone used to induce or augment labor

## ANSWERS TO QUIZ

1. D
2. A
3. H
4. I
5. B
6. E
7. G
8. K
9. F
10. C
11. M
12. J
13. L
14. Q
15. O
16. V
17. T
18. N
19. U
20. S
21. R
22. P

## Glossary

- Abruptio Placenta**-Partial or complete premature separation of a normally implanted placenta.
- Amniotic Fluid**-Fluid surrounding fetus derived primarily from maternal serum and fetal urine.
- Amniotic sac**-Membrane “bag” that contains the fetus during the pregnancy and prior to delivery.
- Amniotomy**-Artificial rupture of the fetal membrane (AROM)
- Analgesia**-Any medication or agent that will relieve pain.
- Anesthesia**-Partial or complete absence of sensation with or without loss of consciousness.
- APGAR**-A score of numeric expression of the condition of a newborn obtained by assessment at 1, 5 and 10 minutes of age; developed by Dr. Virginia Apgar.
- Augmentation**-Pertaining to labor it is the artificial stimulation of an already established labor through either mechanical means or, more commonly, the use of medication.
- Back Labor**-Lay term for a fetus in a vertex, posterior presentation during labor.
- Bartholin’s Glands**-Two small mucus glands, one on each side of the vaginal opening and at the base of the labia majora.
- Birth Plan**-A written plan or checklist expressing a couple’s care preferences for their labor and birth experience.
- Braxton-Hicks**-Mild, intermittent, painless uterine contractions that occur during pregnancy but do not represent true labor.
- Breech**-Fetal presentation in which the buttocks and/or feet are nearest the cervical opening and are born first; occurs in approximately 3% of all deliveries.
- Catheter**-A tube for evacuating or injecting fluids. A urinary catheter drains urine from the bladder. An epidural catheter allows the injection of medication into the epidural space.
- Cephalopelvic Disproportion (CPD)**-Condition in which the fetal head is of such a shape, size or position that it cannot pass through the mother’s pelvis.
- Cervix**-Lowest and narrow end of the uterus.
- Cesarean**-Birth of a fetus by an incision through the abdominal wall and uterus.
- Cleansing Breath**-A deeper inhalation-exhalation exchange accompanying specific breathing techniques. The cleansing breath signals the beginning or the ending of a contraction, provides a balance of oxygenation, fosters relaxation due to improved oxygenation, and provides a focus for the laboring woman.
- Colostrum**-Yellow secretion from the breast preceding the onset of true lactation 2 or 3 days after delivery. So-called “first milk”
- Conception**-Union of the sperm and ovum resulting in fertilization.
- Contraction**-A shortening or tightening of a muscle. In labor a shortening or tightening of the fundus of the uterus.
- Dilatation (Dilation)**-Stretching of the external os of the cervix from an opening a few millimeters in size to an opening large enough to allow the passage of the infant.
- Doppler**-Portable device which can detect fetal heart rate by use of high-frequency sound waves.
- Effacement**-Thinning and shortening or obliteration of the cervix that occurs during late pregnancy or labor or both.
- Electronic Fetal Monitor (EFM)**-Surveillance of the fetal heart rate and maternal uterine activity by an electronic detecting and recording device.
- Embryo**-Conceptus from the second or third week of development until about the eighth week after conception, when mineralization (ossification) of the skeleton begins.
- Endorphins**-Natural morphine-like secretion from the hypothalamus of the brain.
- Enema**-Injection of water into the rectum and colon to empty the lower intestine of fecal material.
- Engaged, Engagement**-In obstetrics, the entrance of the fetal presenting part into the superior pelvic strait and the beginning of descent through the pelvic canal.
- Epidural**-Injection of anesthetic outside the dura mater (anesthetic does not mix with the spinal fluid)
- Episiotomy**-Surgical incision of the perineum at the end of the second stage of labor to facilitate delivery and to avoid laceration of the perineum.
- Expulsion**-Labor contractions which are effective in contracting the uterus from the end of first stage labor (10cm) until the delivery of the infant.

- Fetal Scalp Electrode (FSE)**-Thin spiral wire attached to the fetal scalp skin which detects the electrical signal of the fetal heart rate and transmits it to the EFM where it is recorded.
- Fetus**-Child in utero about the eighth week after conception, until birth.
- First Stage Labor**-When uterine contractions of sufficient frequency, intensity and duration cause the cervix to dilate from 1 to 10 centimeters.
- Focal Point**-Either an external visual object or an internal, mental image upon which to focus one's attention.
- Fontanelle**-An unossified space or soft spot lying between the cranial bones of the skull of a fetus.
- Forceps**-Two double curved, spoonlike paddles used to provide assistive downward traction or rotation on the fetal head during delivery.
- Fourth Stage of Labor**-Begins with the delivery of the placenta and last for an hour or so after delivery during which time uterine "after contractions" act to control uterine hemorrhage.
- Fundus**-Dome-shaped upper portion of the uterus between the points of insertion of the fallopian tubes.
- Heartburn**-Acid liquid raised from the stomach causing sensation of burning in the esophagus.
- Hemorrhoids**-A mass of dilated, tortuous veins in the rectal area.
- Induction**-Artificial stimulation of labor through either mechanical means or the use of medication.
- Intrauterine Pressure Catheter (IUPC)**-A pressure catheter passed through the vagina and into the uterus during labor which detects changes in uterine contraction pressure.
- Intravenous (IV)**-Injection of a solution into a vein.
- Kegels (pelvic Floor Muscle)**-The muscles which surround the urethra, vagina and rectum.
- Lanugo**-Downy, fine hair characteristic of the fetus between 20 weeks' gestation and birth that is most noticeable over the shoulders, forehead, and cheeks but is found on nearly all parts of the body except the palms of the hands, soles of the feet, and the scalp.
- LDR/LDRP**-Birthing suite in which either all of labor, delivery and recovery is accomplished (LDR), or all of labor, delivery, recovery and the postpartum stay (LDRP) is accomplished.
- Lightening**-Sensation of decreased abdominal distention produced by uterine descent into the pelvic cavity as the fetal presenting part settles into the pelvis.
- Lochia**-Vaginal discharge during the puerperium (postpartum) consisting of blood, tissue and mucus.
- Multiparous**-Woman who has carried two or more pregnancies to viability.
- Oxytocin**-Hormone produced by the posterior pituitary that stimulates uterine contractions and the release of milk in the mammary glands.
- Parity**-Number of pregnancies that reach viability.
- Perineum**-Area between the vagina and rectum in the female and between the scrotum and rectum in the male.
- Pitocin**-Proprietary name for an aqueous solution containing the oxytocin fraction of the posterior pituitary gland.
- Placenta**-Specialized vascular disc-shaped organ for maternal-fetal gas and nutrient exchange; afterbirth. Normally it implants in the thick muscular wall of the upper uterine segment.
- Placenta Previa**-Placenta that is abnormally implanted in the thin, lower uterine segment and that is typed according to proximity to the cervical os: total-completely occludes os; partial-does not occlude os completely; and marginal-placenta encroaches on margin of internal cervical os.
- Postmaturity**-Any fetus born more than two weeks after the calculated date of confinement is usually considered postmature.
- Postpartum**-Happening or occurring after birth.
- Precipitous, Precipitate Delivery**-Rapid or sudden labor of less than 3 hours duration beginning from onset of cervical changes to completed birth of neonate.
- Pregnancy Induced Hypertension (PIH)**-The development of hypertension (high blood pressure) during pregnancy, usually after twentieth week of gestation or within the first 24 hours after delivery, when the previous blood pressure determinations were normal.
- Premature Rupture of Membranes (PROM)**- amniotic membranes "sac" which has spontaneously ruptured prior to the onset of labor.
- Prep**-Removal by shaving of the pubic hair of the perineum and/or around the labia.
- Preterm Labor**-Labor commencing before completion of the 37<sup>th</sup> week of gestation.
- Primiparous**-Woman who is pregnant for the first time.
- Prodromal**-Serving as an early symptom or warning of the approach of a disease or condition (e.g, prodromal labor).

- Prolonged rupture of membranes (PROM)**-Uterine inactivity after a delay of 24 hours with ruptured membranes.
- Prostaglandins**-Substance present in many body tissues which affect the cardiovascular system, smooth muscles, and stimulate the uterus to contract.
- Recumbency, Resumbent**-Lying down, reclining.
- Rupture of Membranes**-Rupture of amniotic sac as a normal result of dilation of the cervix in labor.
- Second Stage of Labor**-Begins when dilation of the cervix is complete and ends with delivery of the infant.
- Spontaneous Rupture of Membranes (SRM)**-Rupture of amniotic sac spontaneously without artificial intervention.
- Station**-Relationship of the presenting fetal part to an imaginary line drawn between the ischial spines of the pelvis.
- Third Stage of Labor**—Begins with delivery of the infant and ends with the delivery of the placenta and fetal membranes.
- Tocodynamometer**-Electronic device for measuring uterine contractions.
- Transition**-Last phase of first stage of labor, from 7 or 8 to 10 cm. dilation.
- Trimester**-Time period of 3 months.
- Ultrasound**-High frequency sound waves to discern fetal heart rate or placental location of body parts.
- Uterus**-Hollow muscular organ in the female designed for the implantation, containment, and nourishment of the fetus during its development until birth.
- Vacuum Extraction**-Delivery of a fetus in the vertex presentation with the use of a cup-suction device that is applied to the fetal scalp for traction.
- Vagina**-Normally collapsed musculomembranous tube that forms the passageway between the uterus and the entrance to the vagina.
- Vaginal Exam (VE)**- introduction of the examiner's index and middle fingers into the vagina to determine effacement and dilatation of the cervix, station of the present part; if the membranes are intact, and position of the vertex if it is the presenting part.
- Vernix**-Protective gray-white fatty substance of cheesy consistency covering the fetal skin.
- Vertex**-Crown on top of the head.
- Visualization**-Mental focus on a positive image.

## Bibliography

- Beland, Irene L. *Clinical Nursing: Pathophysiological and Psychosocial Approaches*. London: The MacMillan Company, 1970
- Birth Book, The. California: Krames Communications, 1991
- Black, Lanie and Jackson, Connie, R.N. *Act of Love: Childbirth Education and Baby Care*. California: Caligraphics Printing and Publishing, 1974
- Brinkley, Ginny and Goldberg, Linda and Kukar, Janice. *Your Child's First Journey: A guide To Prepared Birth From Pregnancy to Parenthood*, New Jersey: Avery Publishing Group, Inc., 1982
- Booth, Trish, B.A., ACCE, *Relaxation*. Minnesota: International Childbirth Education Association, Inc., 1986
- Cesarean Childbirth, U.S. Department of Health and Human Services; Public Health Service; National Institutes of Health, Maryland: NIH Publications No. 82-2067, 1981
- Cesarean Fact Sheet- 1989. Minnesota: International Childbirth Education Association, Inc., 1989
- Cunningham, F. Gary, MD., ed., and MacDonald, Paul C., M.D., ed., and Grant, Norman, F., M.D., ed., *Williams Obstetrics: Eighteenth Edition*. California: Appleton and Lange, 1989
- Dorchak, Lovell and Fenlon, Arlene and Oakes, Ellen. *Getting Ready For Childbirth: A Guide For Expectant Parents*. New Jersey: Prentice-Hall, Inc., 1979
- Fitzpatrick, Elise, R.N., M.A., and Reeder, Sharon, R., R.N., M.S., and Mastroianni, Jr., Luigi, M.D., F.A.C.S., F.A.C.O.G. *Maternity Nursing: Twelfth Edition*, Philadelphia: J.B. Lippincott, 1971
- Gill, Pamela, R.N., M.S.N., and Smith, Martha, R.N., M.S.N., and McGregor, Carole, R.N., B.S.N. "Terbutaline By Pump To Prevent Recurrent Preterm Labor". *MCN: The American Journal of Maternal/Child Nursing*, May/June, 1989, pp. 163-167

- Gillmor, Mickey, CNM. Squatting for Labor and Birth. Minnesota: International Childbirth Education Association, Inc.
- Haire, Doris. The Pregnant Patient's Bill of Rights. Minnesota, International Childbirth Education Association, Inc.
- Haire, Doris. The Pregnant Patient's Responsibilities. Minnesota: International Childbirth Education Association, Inc.
- Hannon, Sharron. Childbirth: A Source Book for Conception, Pregnancy, Birth and the First Few Weeks of Life. New York: M. Evans and Company, Inc. 1980
- Hanson, Peter G., M.D. The Joy of Stress. New York: Andrews, McMeel and Parker. 1986
- Hotchner, Tracy. Pregnancy and Childbirth: The Complete Guide for a New Life. New York: Avon, 1984
- Humenick, Sharron S., PhD, ACCE, ed. Expanding Horizons in Childbirth Education. Washington, D.C.,: ASPO/Lamaze, 1983
- ICEA Position Paper: Informed Consent in Pregnancy and Childbirth. Minnesota: International Childbirth Education Association, Inc.
- Induction and Augmentation of Labor (ACOG Technical Bulletin) Washington, D.C.,: The American College of Obstetricians and Gynecologists, 1987
- Jensen, Margaret Duncan, R.N., M.S, and Benson, Ralph C., M.D. and Bobak, Irene M., R.N., M.S Maternity Care: The Nurse and The Family. London: The C.V. Mosby Company, 1981
- Johnson, Francee F., R.N., B.S.N. "Assessment and Education To Prevent Preterm Labor". MCN: The American Journal of Maternal/Child Nursing, May/June, 1989, pp. 157-160
- Kitzinger, Shelia. The Complete Book of Pregnancy and Childbirth. New York: Alfred A Knopf, 1981
- Lawson, Patricia, R.N., C.C.E. and Simon, Fredda, O.T. R., C.C.E. Childbirth Preparation Manual. Self-published, 1976
- Magnacca, Sandy and Murphy, Gail. Handbook in Prepared Childbirth: Second Edition. New Jersey: Avery Publishing Group, Inc. 1983
- Nursing 89: Drug Handbook. Pennsylvania: Intermed Communications, Inc. , 1989
- Murray, Michelle, RNC, MSN. Antepartal and Intrapartal Fetal Monitoring. NAACOG, the Organization for Obstetric, Gynecologic, and Neonatal Nurses, 1988
- O'Brien, Mary Parys. Stress. Minnesota: International Childbirth Education Association, Inc., 1991
- Pearson, Janice. What About Sex During Pregnancy... Minnesota: Internation Childbirth Education Association, Inc., 1988
- Peterson, Gayle H., MSSW, LCSW. Birthing Normally: A Personal Growth Approach to Childbirth. California: Mindbody Press, 1984
- Prepared Childbirth Association of Portland, Oregon, ed. The Parent Manual: Handbook for a Prepared Childbirth, New Jersey: Avery Publishing Group, Inc., 1982
- Pritchard, Jack A., ed., and MacDonald, Paul C., ed. Williams Obstetrics: Fifteenth Edition. New York: Appleton-Century Crofis, 1976
- Shapiro, Harriet Roberts, R.N., ACCE and Kuba, Lynn M., R.N., ACCE and Harmon, Marion D., R.N., ACCE and Burks, Trina, B.S., ACCE. The Lamaze Ready-Reference Guide for Labor and Birth: Second Edition. Washington, D.C.: Washington D.C. Chapter of A.S.P.O. Lamaze, 1990
- Simchack, Margery, BSN, RN, ICCE. Just the Facts About Epidural Anesthesia for Labor. Minnesota: International Childbirth Education Association, Inc.
- Thomas, Clayton L., M.D., M.P.H. Taber's Cyclopedic Medical Dictionary. Philadelphia: F.A. Davis Company, 1973
- Todd, Linda, B.A., M.P.H., Labor and Birth: A Guide for You. Second Edition. Minnesota: International Childbirth Education Association, Inc., 1987
- Young, Diony, B.A. and Mahan; Charles, M.D. Unnecessary Cesarean: Ways To Avoid Them. Minnesota: Internation Childbirth Education Association, Inc., 1989

**Having Your Baby: Real Lamaze Prepared Childbirth****TEST**

1. If a pregnant woman suspects a decrease or change in fetal movements from the 26<sup>th</sup> week of pregnancy or after, she should:
  - a. Place her hands on either side of her abdomen and gently shake her abdomen from left to right.
  - b. Discuss it with her doctor or midwife at her next prenatal appointment.
  - c. Eat a small meal or drink orange juice, lie on her left side for one hour and record the number of fetal movements felt.
  - d. Call her doctor or midwife immediately.
  - e. Go directly to the labor unit at the nearest hospital.
  
2. According to the American College of Obstetricians and Gynecologists, an informed consent includes:
  - a. The process(es) contemplated by the physician as treatment, its risks and hazards.
  - b. The chances for recovery after treatment.
  - c. The necessity of the treatment.
  - d. The feasibility of alternative methods of treatment.
  - e. All of the above.
  
3. The American Academy of Pediatrics' Committee on Drugs has recently stated:
  - a. There is no drug, whether prescription or over-the-counter remedy, which has been proven safe for the unborn child.
  - b. Properly prescribed medications during pregnancy are safe for the unborn child.
  - c. Over-the-counter medications with no disclaimer against use during pregnancy are safe for the unborn child.
  - d. Properly prescribed medications used after the 4<sup>th</sup> month of pregnancy are safe for the unborn child.
  - e. Over-the-counter medications with no disclaimer against the use after the 4<sup>th</sup> month of pregnancy are safe for the unborn child.
  
4. Severe Stomach pains, a severe headache and fever over 100.4F:
  - a. Indicates a case of pyelonephritis.
  - b. Are some of the danger signs of pregnancy.
  - c. Indicate cord prolapse.
  - d. Are precursors of abruption placenta.
  - e. Occur with preterm labor.

5. Sexual intimacy during pregnancy may be contraindicated due to:
  - a. Threatened preterm labor.
  - b. Vaginal bleeding and/or placenta previa.
  - c. Incompetent cervix.
  - d. a & c.
  - e. a, b & c
  
6. Sexual intimacy postpartum may be contraindicated due to:
  - a. Possibility of infection until the placental site heals.
  - b. Pain from the episiotomy site and/or unrepaired vaginal lacerations.
  - c. Fatigue.
  - d. a & b
  - e. a, b & c.
  
7. The weight of the fetus at birth is due to:
  - a. Maternal health, nutrition and eating habits prior to conception.
  - b. Maternal health habits such as smoking, alcohol ingestion, drugs or medications taken.
  - c. Maternal age, parity and pregnancy weight gain.
  - d. Placental sufficiency.
  - e. All of the above.
  
8. The average optimal weight gain of pregnancy is:
  - a. 25-35 pounds.
  - b. 25-30 pounds.
  - c. 20-24 pounds.
  - d. 30-40 pounds.
  - e. 40-60 pounds.
  
9. Women carrying more than one fetus should gain:
  - a. At least 24 pounds.
  - b. 20-25 pounds.
  - c. 25-35 pounds.
  - d. 30-40 pounds.
  - e. 40-60 pounds.
  
10. Pelvic rocks are done to:
  - a. Relax the pelvis.
  - b. Improve posture and relieve backache.
  - c. Improve the curve of the pelvis during second stage labor.
  - d. Prevent posterior presentation of the fetus.
  - e. Strengthen the oblique muscles.

11. Kegels are done to:
  - a. Strengthen abdominal muscle tone and improve circulation.
  - b. Assist expansion of the rib cage and relieve symptoms of SOB and/or heartburn.
  - c. Assist with second stage labor and improve circulation to the episiotomy site.
  - d. Prevent formation of lower extremity blood clots due to pressure of the growing fetus on major blood vessels.
  - e. Aid in return to sexual intimacy immediately postpartum.
  
12. To improve patient-to-caregiver communication:
  - a. The patient should think of herself as consumer purchasing a service.
  - b. Ask questions at each appointment and be sure she understands the answers.
  - c. Have the coach attend prenatal appointments as much as possible.
  - d. Ask questions fully clothed and across the desk from ones' primary caregiver, not in the examining room.
  - e. All of the above.
  
13. Signs of progress in labor can be summed up with two words:
  - a. Breathe and relax.
  - b. Pain and blood.
  - c. Fear and tension.
  - d. Fight or flight.
  - e. Endorphins and active relaxation.
  
14. The release of epinephrine, as in the Fight-or-Flight Response, tends to cause:
  - a. An increase I the rapidity of labor.
  - b. Restlessness.
  - c. Animated behavior.
  - d. A decrease in uterine circulation and contractions leading to a prolonged labor.
  - e. A desire to ambulate in labor.
  
15. Visualization involves:
  - a. Focusing on each contraction.
  - b. Cultural expectations.
  - c. Mentally focusing on a positive image.
  - d. Shared life experiences.
  - e. All of the above.



16. The Gate Control Theory proposes:
- That visualization can alter a woman's perception of pain.
  - That endorphins are released due to massage stimulation of large diameter nerves.
  - That the cerebral cortex can only process one set of signals as a primary signal relegating all other incoming signals to a secondary position.
  - That the cerebral cortex can only process one set of signals as a primary signal while completely ignoring all other incoming signals.
  - That a laboring woman can visualize a place of safety behind a "gate".
17. Neuro-muscular relaxation includes:
- Positive affirmations.
  - Focusing on each muscle group when tensed and, the, when relaxed.
  - Tensing one muscle group while consciously relaxing all others.
  - Massage and effleurage.
  - Musical stimulation of the parasympathetic nerve system.
18. Effleurage:
- Facilitates venous and lymphatic flow.
  - Stimulates afferent neurons which inhibit pain impulses.
  - Can exert an analgesic effect.
  - a & b.
  - a, b & c.
19. Focal point:
- Can be an external visual focus.
  - Can be an internal visualization.
  - Reduces external or extraneous stimuli.
  - Is a primary indicator of the laboring woman's concentration and control.
  - All of the above.
20. Lamaze breathing techniques are:
- A learned skill which enhances relaxation.
  - Rhythmic breathing which develops body awareness and oxygenation.
  - A learned skill that reduces pain perception.
  - a & c
  - a, b & c.
21. Slow, rhythmic breathing:
- Stimulates the parasympathetic nervous system.
  - Stimulates the sympathetic nervous system.
  - Develops body awareness and improved oxygenation.
  - a & c.
  - b & c.

22. Patterned-Paced breathing requires:
- Increased attention focusing by the laboring woman.
  - A respiratory cycle approximately half the normal resting respiratory rate.
  - Inhalation through the nose and exhalation through the mouth.
  - A rapid forceful respiratory exchange.
  - A uniform vowel sound with no variation.
23. Possible detrimental effects on the progress of labor may be:
- Laboring in a large and unfamiliar room or environment.
  - Labor room which is well let, neat and tidy.
  - Being moved at the time of delivery.
  - a & c.
  - a, b & c
24. Non-invasive stimulation of a sluggish labor includes:
- Ambulation and/or position changes.
  - Warm towel on the chest with tactile stimulation of nipples.
  - Removal of stressful individuals.
  - a & b.
  - a, b & c.
25. Which of the following techniques reduce the necessity for an episiotomy?:
- Slow delivery of fetal presenting part with perineal massage.
  - Warm compresses and periurethral support and delivery.
  - Maternal position to decrease perineal pressure.
  - a & b.
  - a, b & c.
26. In primips the fetus typically “drops”, or becomes engaged, how long prior to the onset of spontaneous labor?:
- 10 days to 4 weeks.
  - 2-4 weeks.
  - 10-14 days.
  - 1-2 weeks.
  - 1-2 days.
27. Weight loss prior to delivery is due to:
- Lack of appetite.
  - Stimulation of the adrenal glands.
  - Changing estrogen and progesterone levels.
  - Fetal stasis.
  - b & d

28. Uterine contractions which stop with changes in position or walking is a sign of:
- Prodromal labor.
  - False labor.
  - True labor.
  - a & c.
  - b & c.
29. When the fetal presenting part is at the level of the ischial spines, it is at what station?:
- 2
  - 1
  - 0
  - +1
  - +2
30. Amniotomy causes:
- More intense uterine contractions.
  - Assessment of the amniotic fluid.
  - More rapid progress of labor than with spontaneous rupture of membranes.
  - a & b.
  - a, b & c.
31. The active phase of first stage labor is characterized by:
- Dilatation from 2-5 cms.
  - Contractions typically 5-3 minutes apart.
  - Spontaneous rupture of membranes.
  - The laboring woman's affect is generally alert and sociable.
  - No bloody show.
32. The second state of labor is characterized by:
- Intense contractions usually 2-5 minutes apart.
  - Irritability in the laboring woman.
  - The laboring woman may find odors offensive.
  - Trembling.
  - All of the above.
33. The placenta usually detaches and delivers how long after delivery of the infant?
- 1-5 minutes.
  - 5-10 minutes.
  - 10-20 minutes.
  - 5-30 minutes.
  - 30-60 minutes.

34. The pushing position that uses gravity to best advantage and that widens the pelvic outlet by 0.5-2 cms. More than other positions is:
- Lithotomy.
  - Semi-lithotomy.
  - Squatting.
  - Semi-squatting.
  - Lateral recumbent
35. Back labor, or the posterior presentation of the vertex, occurs in how many labors?:
- 5%
  - 10%
  - 15%
  - 20%
  - 25%
36. Comfort measures which may be helpful to the laboring woman experiencing back labor include:
- Maternal positioning which encourages the fetal weight to be off the maternal spine.
  - Counter-pressure.
  - Temperature changes with counter-pressure.
  - Emotional support and encouragement.
  - All of the above.
37. Legitimate reasons to induce or augment a labor include:
- Prolonged ruptured membranes.
  - Postmaturity or prolonged pregnancy.
  - Diabetic patients.
  - a & b
  - a, b & c.
38. For a laboring patient receiving Pitocin, she must also have:
- Ruptures membranes and an IV.
  - Electronic fetal monitoring and an IV.
  - A PCA (patient-controlled administration) pump for IV narcotic administration.
  - An obstetrician in the labor and delivery unit at all times.
  - A neonatologist available for the delivery.
39. The goal of fetal monitoring is:
- To assess fetal well-being in response to the stress of labor.
  - To predict fetal outcome.
  - To provide continuous documentation for legal purposes.
  - To predict the need for a neonatologists' presence at the delivery.
  - To assess fetal response to medication administration.

40. External fetal monitoring:
- Includes the use of an IUPC.
  - Can be used for stress testing.
  - Includes the use of a fetal scalp electrode.
  - Accurately records the intensity of uterine contractions.
  - Accurately records the fetal heart beat wherever the IUPC is placed abdominally.
41. An unplanned Cesarean delivery may be due to:
- Failure to progress.
  - CPD.
  - Breech or other malpresentation.
  - Abruptio placenta.
  - All of the above.
42. Immediate post-op assessment of the Cesarean patient includes:
- Vital signs and level of anesthesia.
  - Fundal firmness and lochia flow.
  - Reactivity of pupils.
  - a & b
  - a & c.
43. Which statement about Cesareans is true?:
- Seven out of 10 women who had a Cesarean delivery for “failure to progress” have had successful trials of labor and subsequent vaginal deliveries.
  - The Cesarean delivery rate in the U.S. is 40%.
  - The possibility of rupture of the uterine scar is 3%.
  - A Cesarean delivery costs 3 times that of a vaginal delivery.
  - Lower socioeconomic women tend to have a higher Cesarean delivery rate.
44. Narcotic analgesics:
- Help to reduce, abolish or alter maternal perception of pain without loss of consciousness.
  - May cause lowered body temperature, poor muscle tone and increased jaundice in the newborn.
  - Promotes relaxation between contractions.
  - a & c.
  - a, b & c.

45. Epidural anesthesia during labor:
- May require Pitocin augmentation to stimulate a sluggish labor.
  - May require urinary catheterization.
  - May cause a drop in maternal blood pressure.
  - Diminished the urge to push and bearing-down reflex.
  - All of the above.
46. Signs and symptoms of preterm labor include:
- Regular, rhythmic uterine labor contractions.
  - Maternal infection.
  - Cervical dilatation and effacement.
  - a & c.
  - a, b & c.
47. Some possible causative factors in preterm labor are:
- DES exposure and/or more than 2 first-trimester abortions.
  - Maternal infection and/or smoking more than 10 cigarettes a day.
  - Incompetent cervix and/or maternal hypertensive disease.
  - Multi gestation and/or history of cone biopsy.
  - All of the above.
48. Home monitoring for preterm labor may include:
- Regular, scheduled non-stress tests.
  - Regular external monitoring with a tocodynamometer.
  - Amniocentesis at 32 weeks gestation.
  - Bi-weekly IV therapy.
  - All of the above
49. An APGAR score between 4-7 of the newborn:
- Indicated infant adjustment to extra-uterine life.
  - Indicates a strong, lusty infant cry.
  - Indicated the need for special resuscitative measures.
  - Indicates no reflex response.
  - Indicates no need for special neonatology intervention.
50. A precipitous labor:
- Is typical in multiparous labors.
  - Is typical in twin gestations.
  - Is birth of the neonate in 3 hours or less from the onset of labor.
  - Is typical in post date labors.
  - Tends to occur in truly diabetic women.