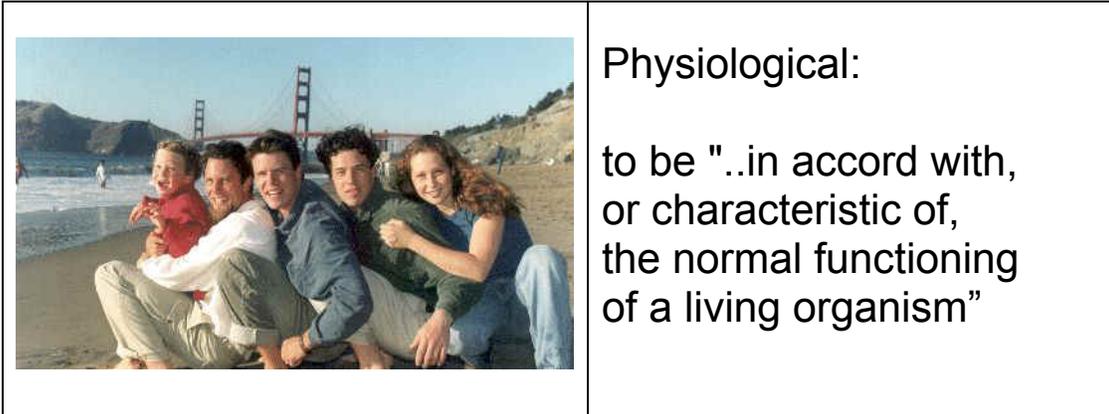


*Principles of Physiological Management
of Spontaneous Labor and Birth*



For the entire 20th century and so far in the first decade of the 21st century, the major missing ingredient in obstetrical training has been a total lack of information about the philosophy, principles, behaviors and skills of physiological management and its association with the psychology of the mother's life and her experience during labor and birth.

Obviously, one does not have to be a midwife to appropriately use physiological management. Luckily, there already exists an excellent textbook published in the UK, entitled "Physiological Childbirth". As for the psychology of the topic, there are many different authors that address the connection between the basic biological equipment of the female human body and the physiological, emotional and social connections that must all work together to bring about or maintain the normal physiology of spontaneous labor and birth.

As for teaching physiological principles in a medical school curriculum, med students, interns and first year OB residents would need to learn about normal birth first, before becoming enmeshed in the pathologies and complications of obstetrical cases. That would require that they work with midwives and learn the management skills for normal labor and spontaneous birth before getting involved with abnormalities and performance of instrumental and surgical deliveries.

Five Elements of Success for Normal Spontaneous Vaginal Birth



1. Healthy Mother/normal pregnancy/spontaneous onset of labor at term, mother **not** planning on the routine use of artificial hormone to accelerant labor, Rx pain medication or anesthesia
2. Parents and practitioners both understand the physiological and psychology of spontaneous labor and birth
3. Physiologically appropriate response by family and professional caregivers to the normal physical, biological and gravitational demands of spontaneous labor and birth
4. Psychologically appropriate response by family and professional caregivers to the emotional and psychological needs of the mother to the normal psychological stresses and painful sensations of labor and birth
5. Willingness of the mother to accept the pain of uterine contraction and the anxiety of not knowing much longer the process may take or how much harder the process may become.

****** The absence or severe dysfunction of any of these five elements will generate dysfunction and result in symptoms that will ultimately require medical or surgical intervention. This may incidentally lead to iatrogenic and/or nosocomial complications, including delayed or downstream complications affecting the mother's future reproductive function or quality of life or affecting the unborn or newborn baby in future a pregnancy.

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Characteristic of Physiological Management include the following protocols, circumstances, practitioner behaviors, and technical skills:

Continuity of care

Patience with nature

Social and emotional support

Mother-controlled environment

Upright and mobile mother during active labor

Provision for appropriate psychological privacy

Recognition of the sexually-based biology of spontaneous labor

Full-time presence of the primary caregiver during active labor

Mother-directed activities, positions & postures for labor & birth

Non-pharmaceutical pain management such as showers & deep water tubs

Judicious use of drugs and anesthesia when medically indicated or requested by mother

Absence of arbitrary time limits as long reasonable progress, mother & baby OK

Birth position by maternal choice unless medical factors require otherwise

Mother-Directed Pushing / NO Valsalva maneuver (prolonged breath-holding)

Physiological clamping of umbilical cord, after circulation stopped (2 to 5 minutes)

Immediate possession and control of newborn by parent unless major medical concerns

On-going and unified care and support of the mother-baby during the postpartum

Access to appropriate care for the 'Second Nine Months' -- breastfeeding advise,

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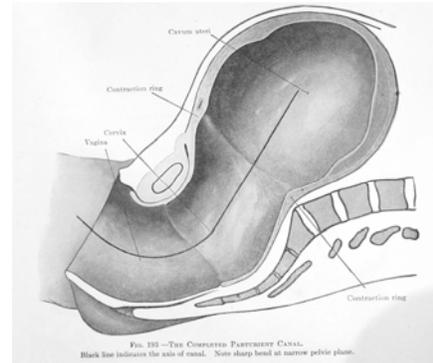
infant development, parenting and psychological adjustments to postpartum stresses relative to other children and spouse, employment outside the home, monitoring for s/s of postpartum depression or other mother-baby relationship problems, et cetera



The Anatomy of Normal Childbirth

The childbearing pelvis – that is, the internal bones that form the passage the baby must pass through -- is a hollow space shaped like the lower-case letter “j”. In anatomical terms, this is called the parturient axis, named the “curve of Carus” in 1789 by the German anatomy professor Gustav Carus.

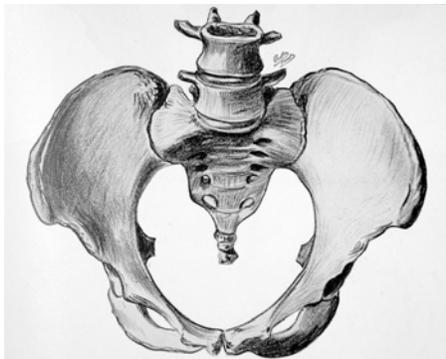
People usually think of the birth canal as a straight chute (like a lower-case ‘l’), going straight down thru the lower half of the mother’s body. In other words, if the mother was lying down and you were watching from the side, people *wrongly* assume that her baby would pass through the pelvis and out of her body the same way a train comes out of a tunnel – a straight cylindrical object passing thru a straight cylindrical container. But this is *not* anatomically accurate for our human anatomy.



Black line traces the “J” of birth canal

Imagine instead that you are looking at an upright pregnant woman from the side as she labors and gives birth while still in an upright posture. If you had x-ray vision, you would see that the long stem of the ‘j’ tracks with the mother’s lower spine and the curved foot of the letter bends forward with the lower third of the birth canal. The pelvic outlet -- last 1/3 of the journey -- bends forward at a 60-degree angle, which requires the baby negotiate an acute angle (or corner) just prior to birth.

This design was perfected millions of years ago for normal birth an upright position. When the mother is standing, her baby will emerge into the world going forward into her waiting hands. This is very different from going straight down towards the floor, where it would be hard for her to reach and might be injured as it fell to the ground. Not doubt “frontal delivery” is an important survival characteristic, as 99.99% of human history predates hospital obstetrics, which meant it was the mother herself who was responsible for ‘catching’ her baby.



Were you to look down into the pelvis from the top, you would notice that the big triangle-shaped bone at the very end of the spine -- the sacrum and coccyx -- encroaches into the pelvic outlet about half an inch. In this regard, the pelvis is like a hollow bowl with smooth walls on three sides but slightly bent in on the fourth side, making it difficult for anything that is the same size and shape as its upper circumference to pass through and out the bottom without seriously banging into this encroaching bony mass and perhaps being stopped by it.

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However, our biological evolution has adapted to this potential problem by providing a specific type of flexibility. During the second stage of labor, after the head has passed thru the fully dilated cervix and the baby's has begun its trek down into the birth canal, you would see something remarkable happen. The place where coccyx affixes to the lower edge of the sacrum is a joint – that is, motion is possible – and the effects of pregnancy hormones make the coccyx, sacrum and all other pelvic joints slightly movable. In addition, these hormones also make the cartilage holding the two sides of the pubic bone more elastic. In conjunction with the right use of gravity -- a mother who is upright and mobile -- (i.e., and not lying down or bearing her weight on her sacrum), the three pelvic joints loosen and widen slightly front to back and from side to side. This gives the baby up to an extra 2 1/2 centimeters (or 1 inch) of additional room to negotiate its passage into the world. This can be the difference between a normal spontaneous birth with a healthy baby and an obstructed labor that traps the unborn fetus and requires the use of forceps or Cesarean section to save the live of the baby.



The Parturient Axis: The baby must first negotiate its way under the **pubic bone** by rotating its head from sideways (head position #1) to an **up / down orientation** (#2)

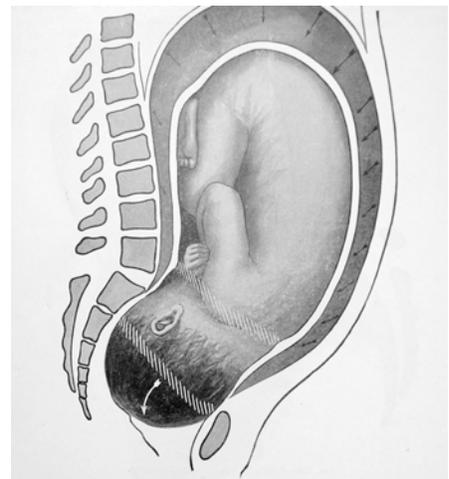
Then the **crown** of the baby's head **spins under the public arch** (#2). When the mother is lying down, the baby's head will be **born by going up, towards the ceiling**.

Head position #3 is **after** the baby's head has already delivered upward. The head turns to line up with the body as the baby's shoulders rotates and deliver.

1. The physiology of normal birth: When the baby's head and the mother's pelvis is a reasonably good match, which is the norm in the human species, the fetal head gradually molds to fit down into the bony pelvic bowl of the human female. In conjunction with voluntary pushing efforts by the mother, the unborn baby gradually makes his or her way down into, thru and finally out of the pelvis, a journey of approximately 6 vertical inches. Sometimes the soft tissue of the mother can be damaged, but minor injuries usually heal without causing any long-term problems.

Length of Normal Labor: Some babies take a little longer than average time to pass through the pelvis. There are several different reasons for this. The most frequent is a labor in which uterine contractions are not long and strong enough or frequent enough to do the job. This usually has nothing to do with the size or fit of the baby and is often a normal variation of labor that can eventually correct itself *without* medical intervention.

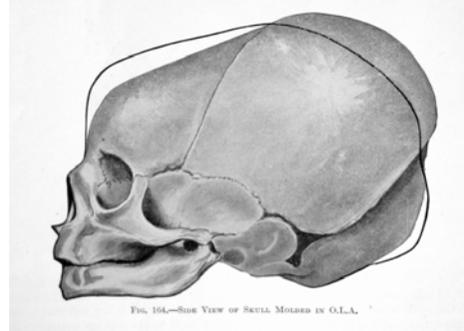
When contractions are frequent and forceful and the expected progress still doesn't occur, the likely reason is a tight fit between the baby and the pelvic. The baby's head may be a bit big for its mother's pelvis, be tipped off to one side (asynclitic)



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or be facing the wrong direction (posterior). However, Mother Nature has a plan for this, one that usually (but not always) works.

The 5 bone plates of the unborn baby's cranium do not grow together until well after the birth. These free-floating bone plates are thus able to 'mold', that is, the edges can slid slightly over one another. Within in reasonable limits, this allows the size and the shape of the baby's head to change until it exactly matches the available space in the mother's pelvis. The need for the fetal skull to mold before it can progress downward usually lengthens the labor by several hours.



As long as there is continued progress --even very slow progress -- and the *baby is tolerating the longer labor*, it is a variation of the norm and will most likely to result in a spontaneous vaginal birth with a healthy mother and baby. Worldwide, it is estimated that 95% of babies can be born normally. Only 5% of labors will need life-saving obstetrical intervention, such as Caesarean surgery. In the case of a neglected or unattended labor, fetal demise and maternal fistula will occur unless the mother has access to obstetrical services,