suffer from more than one symptom during each men- 
strual cycle.

Although there is no conclusive evidence that PMS 
is caused by hormone imbalances, some women have 
been successfully treated by hormonal therapy, which 
consists of oral contraceptives and monthly injections of 
progesterone. Recent research has linked premenstrual 
syndrome to an inadequate number of progesterone re-
ceptors or to the failure of those receptors to function 
properly, suggesting that PMS may be a disorder of 
progesterone response rather than progesterone deficien-
cy. Other studies have posited a link between PMS and 
brain opioid (opiate-like) activity, based on alleged simi-
larities between the symptoms of PMS and those of 
heroin withdrawal. Regular aerobic exercise, which 
helps stabilize opioid levels in the brain, has been shown 
to decrease PMS.

The physiological effects of PMS can be reduced 
through natural means, including stress management, di-
etary changes, acupressure massage, yoga, regular exer-
cise, and adequate rest. Nutritional supplements, such as 
vitamins A, E, and B-6 have been shown to aid in the 
treatment of PMS, as have calcium and magnesium. 
Some physicians prescribe diuretics to treat water reten-
ton or tranquilizers for the treatment of irritability and 
mood swings. Recent research has suggested that drugs 
which increase the brain’s serotonin levels, such Prozac, 
may also be helpful in treating PMS.

Although PMS has received much attention from 
the medical establishment, some women’s health experts 
believe that its severity and significance have been exag-
gerated, and claim that only a small percentage of women 
have premenstrual symptoms so disabling that it inter-
feres with work or other aspects of their lives. They also 
contend that the increased awareness of PMS contributes 
to a cultural bias that disproportionately attributes a 
woman’s fluctuations in mood to her menstrual cycle, 
when the moods of both males and females will fluctuate 
within the course of a month for many reasons—both 
physiological and environmental—that have nothing to 
do with menstruation. In a recent investigation into the 
link between a woman’s psychological characteristics and 
premenstrual syndrome, it was noted that whether or not 
women report PMS has less to do with the number and 
severity of their actual symptoms than with their general 
outlook on life, including levels of self-esteem and the 
ability to express feelings and manage stress.

Further Reading
Dalton, Katharina. PMS: the Essential Guide to Treatment Op-
PMS: It’s Not in Your Head. [videorecording] Omaha, NB: En-
vision Communications, 1993.

---

**Primal therapy**

A therapeutic technique that claims to cure psy-
chological disorders by encouraging people to feel 
deeper the pain and trauma they experienced very 
early in life.

Primal therapy was pioneered by Dr. Arthur Janov in 
the late 1960s. Janov describes it as a “natural therapy” 
based on his hypothesis that most psychological distur-
bances are disorders of feeling which can be traced back 
to the traumas of conception and childbirth. The theoreti-
cal basis for the therapy is the supposition that prenatal 
experiences and birth trauma form people’s primary im-
pressions of life and that they subsequently influence the 
direction our lives take. The “natural” part of the theory 
is based on Janov’s belief that these early primary ex-
periences imprint on the human central nervous system, 
creating physiological and psychological problems in the 
future. Primal therapy is designed to enable clients to re-
experience those critical moments. By doing so, it is 
assumed that underlying tensions are released, problems 
are alleviated, and psychological and physiological well 
being are restored.

The component of primal therapy with which most 
people are familiar is “The Primal Scream”—also the 
title of Janov’s first book on primal therapy (New York: 
Perigee Books, 1970). The book describes how, with pri-
mal therapy, clients are encouraged to fully feel their 
original traumas (namely those of birth and conception) 
and to scream in response to the intense pain these “re-
pressed memories” are thought to elicit. These memories 
are believed to be so intense that they can only be ex-
pressed with loud screaming. The process is best under-
taken in a safe and controlled environment—a room with 
dim lighting, a padded floor, and padded walls.

Using these techniques, Janov claims that primal 
therapy reduces or eliminates a host of physical and psy-
chological ailments in a relatively short time with lasting 
results. In fact, Janov reports that ridding the mind of so-
called repressed early childhood or infant traumas has 
been scientifically linked to the reduction of many seri-
ous medical problems including stress, anxiety, depres-
sion, sleep disorders, high blood pressure, cancer, drug 
and alcohol addiction, sexual difficulties, phobias, obses-
sions, ulcers, migraines, asthma, and arthritis. Unfortu-
nately, there exists no scientific evidence to support these 
claims; Janov’s assertions of scientific linkage are based 
on uncontrolled case histories and personal observations.

Truth be known, primal therapy cannot be defended 
on scientifically established principles. This is not sur-
prising considering its questionable theoretical rationale.
For instance, clinicians at one Canadian *psychotherapy* clinic specializing in primal therapy make the claim that, if a child is conceived through *rape*, the mother’s egg and the father’s sperm are “imprinted with the specific feeling state about the incident and pass this ‘memory’ on to the child’s every cell.” This supposedly causes the child a lifetime of pain and psychological trouble unless he or she learns to express his or her real feelings about the *memory* of this event. Evidence from research on memory and emotions, however, does not support the existence of retrievable memories of *birth trauma*. In short, “cellular” memories of conception are a scientific fiction. Moreover, even if infant memories were retrievable, there is no evidence to suggest that they should have such a disproportionate impact on people’s lives. A recent survey of the opinions of 300 clinicians and researchers regarding psychotherapeutic techniques revealed that primal therapy was the technique whose soundness was most often questioned. Likewise, an evaluation of primal therapy commissioned by German courts concluded that primal therapy is not a valid therapeutic technique.

In Dr. Janov’s latest book, *The Biology of Love*, primal therapy is discussed in the context of neuroanatomy and neurochemistry. This relationship is, however, scientifically tenuous. For example, although it is accepted among neuroscientists that working yourself into a frenzy and screaming can lead to the subsequent release of endorphins that produce feelings of relaxation and well-being, there is no evidence to support Janov’s assertion that this relaxation can be attributable to the release of repressed memories. A far more likely explanation is that the endorphins are released, much like in “runner’s high,” in response to the strenuous activity involved. Primal therapy remains essentially unaltered from what it was 30 years ago—a creative theory and an interesting approach to therapy, but one lacking scientific substantiation.

Timothy Moore

**Further Reading**


---

**Programmed learning**

A method of self-instruction that enlists machines or specially prepared books to teach information.

Originally introduced in the mid-1950s by behaviorist B.F. Skinner, programmed instruction is a system whereby the learner uses specially prepared books or equipment to learn without a teacher. It was intended to free teachers from burdensome drills and repetitive problem-solving inherent in teaching basic academic subjects like spelling, arithmetic, and reading. Skinner based his ideas on the principle of *operant conditioning*, which theorized that learning takes place when a reinforcing stimulus is presented to reward a correct response. In early programmed instruction, students punched answers to simple math problems into a type of keyboard. If the answer was correct, the machine would advance to another problem. Incorrect answers would not advance. Skinner believed such learning could, in fact, be superior to traditional teacher-based instruction because children were rewarded immediately and individually for correct answers rather than waiting for a teacher to correct written answers or respond verbally. Programmed instruction quickly became popular and spawned much educational research and commercial enterprise in the production of programmed instructional materials. It is considered the antecedent of modern computer-assisted learning.

Two types of programmed learning can be compared. Linear programming involves a simple step-by-step procedure. There is a single set of materials and students work from one problem to the next until the end of the program. Branching programming is more complex. Students choose from multiple-choice answers and then are prompted to proceed to another page of the book depending on their answer. If a correct answer is given, students move on to another page with more information to learn and more questions to answer. An incorrect answer leads to comments on why the answer is incorrect and a direction to return to the original question to make another selection.

Just as the programming developed more complexity over the years, so did the teaching machines themselves. Early, simple machines were little more than electronic workbooks. Later machines allowed students to be instructed on more complex material that required more than one-word or one-number responses. In some, students could write their responses and move ahead by comparing their answers to acceptable answers. Programmed-learning books differ from traditional workbooks because they actually teach new information through this step-by-step stimulus-response method rather than simply offering practice material for already-learned skills.

Research has shown that programmed learning often is as successful, and sometimes more successful, than traditional teacher-based learning because it recognizes the different abilities and needs of individual children.