

Evaluating Plan B as an Abortifacient

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Yesterday the United States Supreme Court began a case that will investigate whether an employer can opt out of a mandatory insurance requirement, refusing to be even remotely involved with offering products that can result in the loss of an unborn child. These objections are deemed religious in nature as many employers, including Hobby Lobby, strive to live in accordance with what they believe are divinely inspired laws, e.g. “Thou shalt not kill.”

In opposition, some argue that an unborn child is not a child but a fetus and therefore there is no killing involved, no grounds for a religious objection. Others in the same camp argue that the choice should be up to the individual and that neither an employer nor government should deny the right to this choice. Lastly, some argue that the products in question don't actually result in the loss of a newly conceived child (aka blastocyte, zygote, fetus) because they only prevent conception and do not impair or prevent implantation into the womb or disrupt normal growth. Nonetheless, this last argument doesn't address concerns related to insurance that includes elective medical procedures, i.e. surgical abortion.

The Obama Administration currently requires that all plans subsidized on the public Healthcare exchange must include abortion as an elective medical procedure –no one can choose a plan on the exchange that doesn't include this option. In contrast, members of Congress can choose a plan that doesn't include abortion as an elective

medical procedure, but only nine of the 112 plans have this option: “Health plans that do not provide coverage for elective abortions include all Aetna health plans, as well as the multi-state plans (MSP) offered by CareFirst BlueCross BlueShield (only the plans that include ‘Multi-State Plan’ in their name). All health plans offered by Kaiser Permanente, United Healthcare, and CareFirst BlueCross BlueShield plans that do not include ‘Multi-State Plan’ in their name include coverage for elective abortions...”

Source: <http://dailycaller.com/2013/12/04/gop-rep-most-obamacare-plans-for-congress-cover-abortion>

In this article, I examine the three arguments listed above that would oppose a right to refuse involvement with government managed healthcare based on concerns involving the loss of an unborn child. In addressing the last argument, I’ll discuss whether products, such as Plan B (aka the Morning After Pill), cause an abortion.

The first argument, which is geared at denying a person or business the right to refuse involvement or cooperation with government managed healthcare that doesn’t uphold the dignity of human life from the moment of conception, rests upon a misunderstanding of when human life begins. This misunderstanding involves denying a person their identity as a human being according to their level of development. Similarly, the argument often coincides with reducing the humanity of a human being by referring to him or her as something not fully human, e.g. fetus, zygote or blastocyte.

In regards to this argument, there is no reason why the term fetus, zygote or blastocyte, or whether a person is in their first or fourth month of development, should nullify the knowledge that a human person, each possessing their own DNA, goes through different stages of growth and can be classified by those stages during their

lifetime. The term toddler and child both refer to different levels of development but both refer to human beings.

Taking this awareness to the very beginning, our first president, George Washington, was at one point in his life, only one cell big, but still very much the person that would eventually become George Washington because that single cell contained all the DNA that made George Washington George Washington from the moment of conception. Likewise, Jesus, who some believe never actually existed in the flesh, began his earthly life at the moment when the union of the chromosomes from Mary's oocyte combined with the chromosomes from the Holy Spirit. This hypostatic union, as Catholics and most Christians accept, may seem easier to believe than the Big Bang, i.e. that something came from nothing, at least in the sense that it did so without a Creator. Similarly, the belief is likely easier to accept than one that involves life developing, organizing and reproducing itself by chance from a primitive mixture of rocks, gases and water. This acceptance would be especially true for those who have an understanding of the complex machinery and processes taking place in a living cell, further elucidating the unlikely probability that those numerous and complex processes would come together simultaneously on their own.

Accordingly, should we think of a person according to their present appearance and level of development or according to their potential? I believe the majority of Americans would say according to a person's potential. If I'm correct, then the majority of Americans would likely disfavor a government healthcare program that requires them to pay for surgical and medical abortions or drugs that induce abortion.

Many Americans believe that every human being has been made in the image of God and that each has the potential for a special, sacred union with their Creator, even if such a relationship is not always apparent. With a right to life and a freedom to

believe what one chooses, all Americans are free to believe that human life begins at the moment of conception and that that new human life should be protected, regardless of that person's apparent level of development. In fact, a person does not need to believe this for it to be so. Science has proven that human life begins at conception, that the DNA that exists in the first cell of that person after their moment of conception is the same DNA that person will have in almost every cell of their body for the rest of their life. But, since there is a disconnect between our science and our legislation, let us treat it as a belief for the time being... are we free to exercise that belief and to what extent? Should the owner of a business have the right to orchestrate his or her business in accordance with that belief? If not, will the harmony of their life be too deeply stifled? If so, what should be done?

The second argument involves addressing whether the choice should be up to the individual, i.e. neither an employer nor government should deny the right of the person who has been entrusted with that new life, and his or her (I say his or her since a person's sex can be determined from the moment of their conception) biological development, to determine when that life is actually a human life, such that prior to that time, aborting his or her life would be acceptable and/or legal.

In regards to this argument, all would prefer living in a world where everyone makes the right choice, not because laws prohibit the alternative, but because their conscience accurately dictates to them what is right and wrong.

“If men were angels, no government would be necessary.” –James Madison

Nonetheless, laws and government often serve as guidelines for establishing what is right and wrong, helping to direct us, especially while we're young, impressionable and more likely to be suffering from ignorance.

In regards to laws serving as guidelines, many of those who believe in God would argue that one of the greatest gifts mankind has received from Him is the 10 Commandments –Divine Laws that help to reveal our fallen nature, a nature that so often clouds our intellect, preventing us from choosing what is good. Whether as individuals or complex civilizations, we're often ignorant of what is good, and even when we know what is good, we're frequently too self-absorbed, or concerned with fitting in, or hard-hearted to practice it.

Evil can be defined as the absence of a good that should be there. Is it evil **not** to protect innocent human life?

One of the pillars of America as found in our Declaration of Independence is the acknowledgement that our rights come from God, not our government. America is at her best when she respects that every person has a God given right to life. In general, killing innocent people is against the law. Laws that help prevent the loss of human life, at all stages of development, are an important part of a society that aims to steer citizens towards what is good.

Should there be exceptions? When the life of a mother would surely end, along with the life of the child, due to complications during delivery, should the woman and/or her family have the right to end the life of the child prematurely or should the life of the child be saved over the life of the mother?

No matter what, every attempt should be made to save both lives. And, regardless of whether one would favor the life of the mother over the child or vice-versa, the choice for the mother to sacrifice her life in favor of the child should not be made by a government or a hospital. Similarly, she should not face a penalty for **not** wanting to sacrifice her own life for the child. While such a sacrifice would be very noble and even saintly, it is a choice that should be left up to the mother and her

family. Furthermore, a physician should not be forced to assist the woman in taking the life of the child if he or she opposes performing such a procedure. Similarly, he or she should not face termination of employment for exercising a conscientious objection.

A hospital or healthcare professional should be able to refuse being involved in facilitating an abortion if their conscience dictates that doing so would be an unacceptable evil. Likewise, our government should not be able to force a hospital or healthcare provider to perform an abortion or prescribe or dispense products that can lead to an abortion, nor should it force employers to offer healthcare insurance that cover abortion related products or services, nor should it subsidize health insurance plans and penalize those who don't want to participate in them due to conscientious objections that involve facilitating the destruction of innocent human life.

In retaining the right of a healthcare provider to conscientiously refuse to prescribe or dispense products or services that result in the loss of human life, they're simultaneously given a chance to advise and potentially help guide those who are seeking such assistance, potentially informing them of the risks associated with such products and services while remaining unbiased by the potential for financial gain, which may not be the case should the lady seek help elsewhere, e.g. Planned Parenthood. Presently, most healthcare providers would face losing their job or not being hired, possibly because their employer would potentially lose business or find themselves in a political hotbed. For this reason, legislation needs to be passed that acknowledges and protects the right of an individual healthcare provider to conscientiously refuse performing abortion related services or dispensing abortion related products, without being discriminated against during the hiring process or while remaining employed.

In regards to the last argument, invoking the knowledge of science and medicine I've gained as a healthcare professional, I make the case that the morning after pill does not simply prevent conception, but can and does result in the loss of a newly conceived child, particularly when administered after the normal time of ovulation or one to two days beforehand.

In addressing the evidence for this conclusion, first consider the following online post on Yahoo Answers:

How long does the Plan B pill effect your cycle?

NM asked 10 months ago

last updated 1 week ago

so my now ex boyfriend and I had unprotected sex April 5th he didn't ejaculate in me but I was still worried about it so I went and bought the plan b pill April 6th and took it about 19 hours after sex. April 6th was also my ovulation day according to my period tracker. then I was supposed to get my period April 19th but instead I got it from April 16th- 20th which is a normal amount of time. I read that the pill can cause your period to come early or late depending on when you take it in your cycle. so I guess that's why I got it early. also my period was really light for the first few days then got so heavy I bled through my pants. now I was supposed to start my period again today May 12th but no sign of it. could I be pregnant or is it the pill still messing with my period cycle? please answer.

ps: I have not had sex with him or anyone else since April 5th. also I took a pregnancy test May 5th exactly a month after sex and it came out negative.

Best Answer **Asker's Choice**

•BB answered 10 months ago

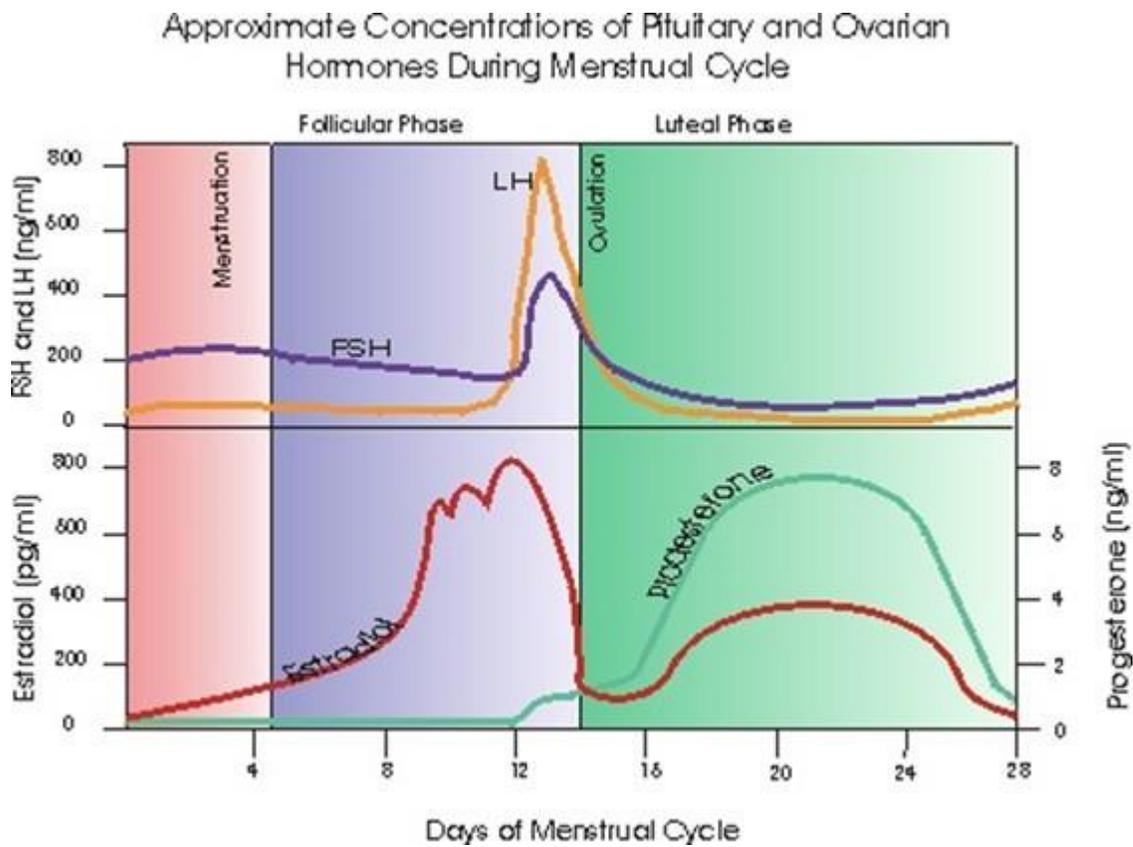
Dear NM, Taking [Plan B](#) will affect your [menstrual cycle](#). By taking EC, you are forcing the lining out of your uterus prematurely. You will probably experience spotting and bleeding immediately after taking Plan B. This is completely normal and it means that the pill has worked. Do not be alarmed if you don't experience bleeding. Do not be alarmed if you experience menstruation-like bleeding after taking Plan B— but if it lasts for longer than your normal period. Yes the hormone can make you start earlier or later. Also because your egg could have been in the process of fertilization (but you took the morning after pill to stop it) it would imminently dispose of the egg and shed the lining meaning you would come on earlier and shorter. Taking Plan B creates a hormonal imbalance in your body. While that sounds like a bad thing, it really isn't. Basically, Plan B contains high levels of progesterone. Progesterone is a hormone that naturally occurs in a woman's body when she is pregnant. Progesterone slows down the ovulation process or stops it entirely which is why it occurs in such high levels while a woman is pregnant. You certainly don't want to be ovulating while you're already carrying a baby. When you take Plan B, you are getting a high dosage of that hormone which in effect tricks your body into thinking it's already pregnant which stops the ovulation process. When the hormone level begins to decrease rapidly (not long after you've taken your medication), your body then thinks you're no longer pregnant and begins the ovulation process all over again. This is also why some women experience bleeding or spotting after they take Plan B. Your body passes the blood rich uterine lining and bleeding may occur at this point. This is where the confusion may come in. Because you've created that imbalance and the internal confusion, your period could easily be delayed after you take Plan B. Sometimes it's just delayed by a few days. Other times, it may be delayed by a week or more. For some women, it takes two or three months for their menstrual cycle to get back on track. You would still get your period in that time, but it could be later or earlier than it normally would be.

Note BB's response, "By taking Emergency Contraceptives, you are forcing the lining out of your uterus prematurely... because your egg could have been in the process of fertilization... it would imminently dispose of the egg and shed the lining...."

A comprehensive review of the effects of Emergency Contraceptives on pregnancy may be found in the following article produced by the National Catholic Bioethics Center, "The Post Ovulatory Mechanism of Action of Plan

B." <http://ncbcenter.org/document.doc?id=584>

Below is a graph showing normal hormone levels during menstruation:



Graph 1: Days of Menstrual Cycle vs. Estradiol, FSH, LH and Progesterone levels

Source: <http://www.women-health-info.com/231-Endocrinology-Menstrual-Cycle.html>

Per Wikipedia: “After [ovulation](#), the [anterior pituitary](#) hormones [FSH](#) (Follicle Stimulating Hormone) and [LH](#) (Luteinizing Hormone) cause the remaining parts of the dominant [follicle](#) to transform into the [corpus luteum](#). It continues to grow for some time after ovulation and produces significant amounts of hormones, particularly [progesterone](#),^[3] and, to a lesser extent, [estrogen](#). The hormones produced by the corpus luteum suppress production of FSH and LH, which the corpus luteum needs to maintain itself. With continued low levels of FSH and LH, the corpus luteum will atrophy.^[2]

The death of the corpus luteum results in falling levels of progesterone and estrogen. These falling levels of ovarian hormones cause increased levels of FSH, which begins recruiting follicles for the next cycle. Continued drops in levels of estrogen and progesterone trigger the end of the luteal phase: [menstruation](#) and the beginning of the next cycle.^[3]” — http://en.wikipedia.org/wiki/Luteal_phase

A newly released egg, or ovum, can survive for 12 to 24 hours without fertilization while sperm can survive for up to five days after intercourse. It takes seven to 10 days after fertilization for the small body of a newly conceived child to travel down the fallopian tubes for implantation into the uterine lining. Notice from the graph that progesterone levels increase for nearly seven days after the ovum is formed and are maintained at that level for two to three days before beginning to decrease.

When fertilization occurs, under normal circumstances, progesterone activity / levels never decrease. This change is critical as “progesterone serves to maintain the integrity of the [uterine lining](#) by enriching the [uterus](#) with a thick [lining](#) of [blood vessels](#) and [capillaries](#) so that it can sustain the growing [fetus](#).” This normal process of increasing progesterone is made possible through human chorionic gonadotropin (hCG):

“a [hormone](#) produced by a component of the fertilized egg, medically known as the syncytiotrophoblast. The syncytiotrophoblast promotes the maintenance of the [corpus luteum](#) during the beginning of [pregnancy](#), allowing the corpus luteum to [secrete progesterone](#) during the first trimester, i.e. the first four months of pregnancy.”

Source: http://en.wikipedia.org/wiki/Human_chorionic_gonadotropin

“The syncytiotrophoblast itself secretes [progesterone](#) but is not mature enough to secrete enough progesterone to support pregnancy until the fourth month of embryonic development.”

Source: <http://en.wikipedia.org/wiki/Syncytiotrophoblast>

When a woman takes Plan B, the level of the active ingredient, which mimics progesterone, rises rapidly. Here are measurements of the levels of levonorgestrel following administration of Plan B.

Table 1 Pharmacokinetic Parameter Values Following Single Dose Administration of Plan B[®] (Levonorgestrel) Tablets 0.75 mg to Healthy Female Volunteers

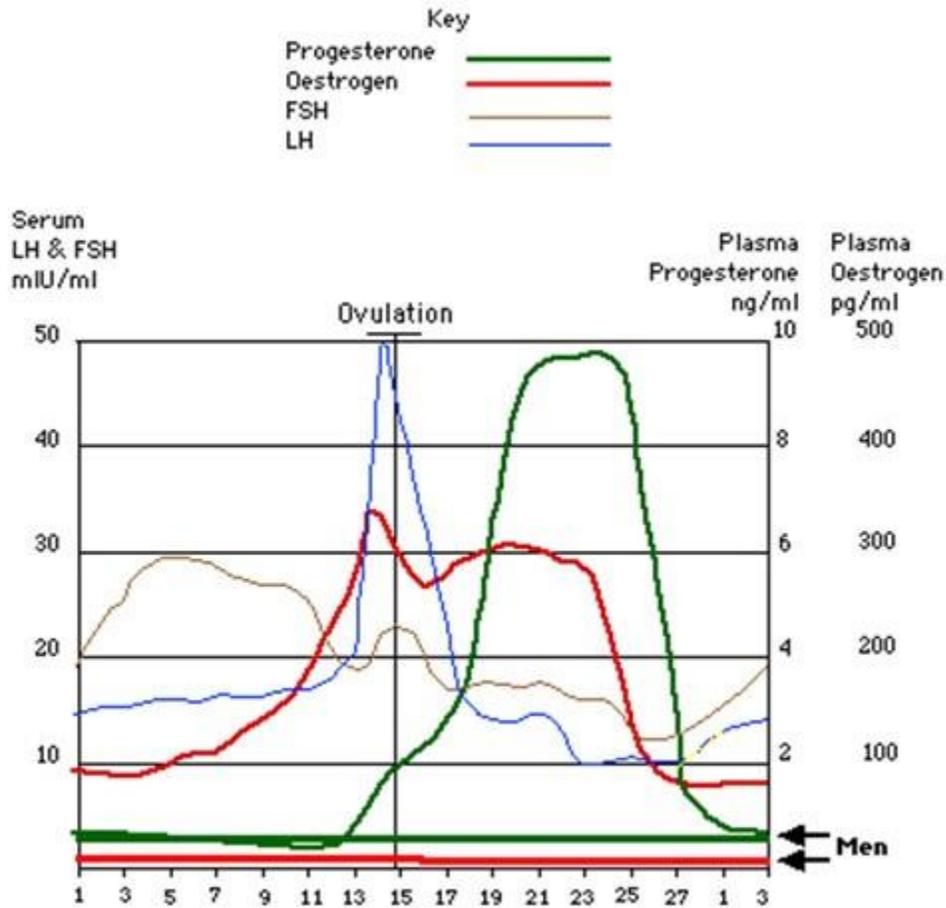
N	Mean (\pm S.D.)					
	C _{max} (ng/mL)	T _{max} (h)	CL (L/h)	V _d (L)	T _{1/2} (h)	AUC _{0-∞} (ng/mL/h)
16	14.1 \pm 7.7	1.6 \pm 0.7	7.7 \pm 2.7	260.0	24.4 \pm 5.3	123.1 \pm 50.1

Source: <http://ec.princeton.edu/pills/PlanBLabeling.pdf>

Note the C_{max} of 14.1 ng/mL after 1.6 hours.

In addition to the first graph, the graph below shows normal concentrations of progesterone during the menstrual cycle:

The chart below shows hormonal variations in both men and women



NB : Women
 Day 1 is the first day of menstruation
 A normal menstrual cycle can last from 21 to 36 days

Men
 Produce 3-100 ng/ml of testosterone per month

Graph 2: Days of Menstrual Cycle vs. Estradiol, FSH, LH and Progesterone levels

Source: <http://www.progesteronetherapy.com/progesterone-therapy.html#axzz2wcC8Svxc>

Note from Graphs 1 & 2 that progesterone levels don't increase beyond 10 ng/mL (nanograms per milliliter). Consider how sensitive these levels are... there are 1 trillion nanograms in a gram. When a woman takes Plan B, the amount of

progesterone activity increases rapidly and reaches a peak level 1.6 hours after administration ($T_{max} = 1.6 \text{ h}$). Note that at that time the maximum concentration of the progesterone-like, levonorgestrel, reaches 14.1 ng/mL.

Now consider that after reaching this peak, progesterone activity levels begin to fall and that falling levels of progesterone activity cause an increase in levels of FSH. This change begins a process that recruits follicles for the next cycle, causing the current corpus luteum to atrophy. As mentioned earlier, “Continued drops in the levels of estrogen and progesterone trigger the end of the luteal phase: [menstruation](#) and the beginning of the next cycle.^[3]”

— http://en.wikipedia.org/wiki/Luteal_phase

In regards to conception, one of two likely possibilities occurs when Plan B is taken after ovulation AND intercourse where ejaculation has occurred within the preceding five days (since sperm can live for around five days), or within one day after ovulation (since the egg can live for up to 24 hours):

1. A newly formed child has been conceived but cannot implant into the uterine lining because abnormal changes in progesterone activity caused by the levonorgestrel from Plan B have prevented the development of a suitable environment for implantation
2. A newly forming child implants in the uterus but is lost because the rapid increase and decrease in progesterone activity caused by the Plan B triggers an increase in FSH, which causes new follicle recruitment, atrophy of the existing corpus luteum and eventually, menstruation. Again,

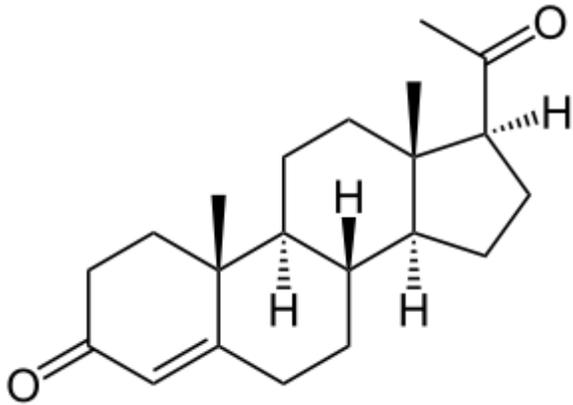
“Continued drops in levels of estrogen and progesterone trigger the end of the luteal phase: [menstruation](#) and the beginning of the next cycle.^[3]” — http://en.wikipedia.org/wiki/Luteal_phase

In the case of the young lady who posted her concerns on Yahoo, she had intercourse with her boyfriend the day before her ovulation day. If sufficient sperm had been

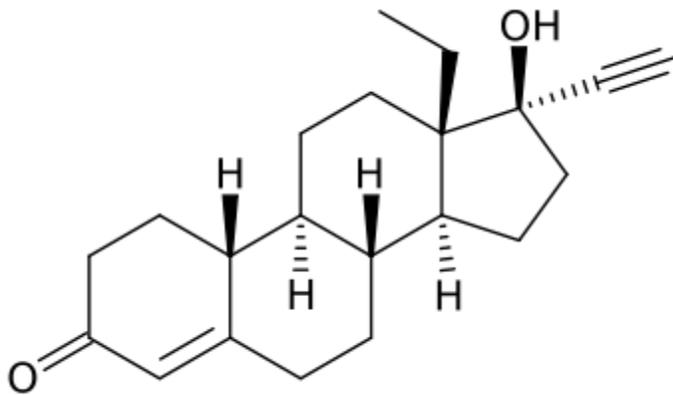
discharged during intercourse, and partial ejaculations during intercourse aren't uncommon, a newly conceived child would most likely have been formed. On her ovulation day she took Plan B, which she described as about 19 hours after intercourse. LH and FSH would already have been released over the previous two days, completing the follicular phase of her cycle for the release of an egg/ovum. As mentioned earlier, it takes around seven days for the newly formed child to travel down the fallopian tube and implant into the uterine lining. During this time the progesterone and estrogen produced by the corpus luteum, and to a lesser extent, the syncytiotrophoblast, prepare the uterine lining for implantation.

Since the young lady took Plan B, the rapid increase and decrease in progesterone would cause an increase in FSH, causing new follicular recruitment and menstruation. Levonorgestrel has a half-life of about 24 hours, meaning in one day only half of the concentration of Plan B would still be distributed throughout her body, after four days, the amount in her system will be around 6.25%. Since it takes seven to 10 days for the newly conceived child to travel down the fallopian tube for implantation, the changes caused by the altered progesterone levels would already have produced significant effects on the uterine lining.

Also, in assessing the effect of the levonorgestrel on progesterone receptors, we may assume a 1:1 potency when compared to progesterone, but the actual potency may be much higher. If more potent, the progesterone activity when compared to natural progesterone would also be several times higher. It is well established from a chemistry standpoint that small changes in the atomic composition of a molecule can have drastic effects on the potency of the molecule when interacting with target receptors. Below is the molecular image of progesterone and levonorgestrel, respectively.



<http://en.wikipedia.org/wiki/File:Progesteron.svg>



<http://en.wikipedia.org/wiki/File:Levonorgestrel.svg>

From this example, levonorgestrel appears less polar than progesterone, which would make it more lipophilic (oil or fat loving), thereby improving the ability of the molecule to travel through fat tissue, including cell walls, potentially increasing its interaction with the progesterone receptor and accordingly, potency. In discussing lipophilicity, keep in mind that oil and water don't mix. This is because water is polar, or charged, and oil is not. All molecules may be classified according to the degree they absorb into oil or water. More polar molecules, i.e. charged, absorb more readily into water while more lipophilic (fat loving) molecules absorb more readily into oil. These considerations have large implications when considering how

molecules behave in the body –small changes in the molecule can have very large effects on distribution and potency.

In theory, the light bleeding that began in the young lady about 10 days after taking Plan B was the result of the surge in progesterone activity, which likely caused rapid growth in her uterine lining. Note that her bleeding started three days before the normal date for her period. If the sensitive layers of uterine lining are formed progressively as a direct result of a gradual increase in progesterone, involving a sensitive regulation of progesterone receptors, her early menses may be explained by an attempt of her body to normalize uterine thickness with available progesterone. Since this abnormality caused a type of early menses, stability was not achieved and eventually the uterine lining was shed completely, resulting in heavy bleeding, or as she stated, “bleeding through my pants.” In this case, whether or not a newly conceived child had implanted into the womb, the uterine lining was too unstable for successful growth.

A variation of this theory would include an analysis of the effect of falling progesterone levels on FSH and new follicle recruitment, assessing the extent that the decrease in progesterone receptor activity caused by the rise and fall of levonorgestrel triggers the newly developing corpus luteum to atrophy. Once the corpus luteum atrophies, growth of new uterine tissue would nearly cease as progesterone levels would only coincide with those produced by the syncytiotrophoblast, signaling that no pregnancy has occurred and causing any uterine lining that had developed in the interim to be shed, i.e. menstruation.

Similarly, in situations where Plan B is taken at least seven to 10 days after ovulation and fertilization, allowing time for the newly conceived child to travel down the fallopian tubes for implantation, menses could be triggered by the rise and fall in

progesterone activity, causing an abnormal acceleration of uterine lining development and a later drop in progesterone receptor activity, which would trigger FSH release and new follicle recruitment, leading to atrophy of the existing corpus luteum.

In further evaluation, suppose a newly conceived child is formed and successfully implants into the uterine wall seven to 10 days after fertilization, but after several more cell divisions, something goes wrong naturally and the child cannot grow any further, possibly due to a chromosomal abnormality. In this scenario, hCG production would cease, causing progesterone production from the corpus luteum to decrease, which would then cause FSH to increase, leading to menstruation. This scenario would result in a woman having what appears as a normal period, though it would likely involve heavier bleeding and be delayed from her anticipated date.

In conclusion, Plan B does not simply prevent conception but can and does result in the loss of a newly conceived child when administered after ovulation and fertilization, with pregnancy termination caused by a rise and fall of progesterone activity, where the sudden decrease in progesterone activity triggers a non-repairable disruption of normal uterine development, leading to menses, and/or an increase in FSH that leads to new follicular development and atrophy of the developing corpus luteum.

One last closing thought, which illuminates the wisdom of Catholic Church in regards to the use of contraception:

3 in 1000 women taking hormonal contraception, e.g. Apri, Yasmin, Trivora, Ortho-Novum etc, regularly and correctly, will still become pregnant.

Suppose you, your girlfriend or your spouse are taking contraception and a pregnancy occurs... are you willing to have an abortion? If not, why take the chance? Consider only being intimate when you're prepared to accept the new life that may result. Taking it a step further, only have intercourse when you know you're in a committed relationship, such as marriage, helping to confirm that the person you're with will be by your side and taking on the responsibilities of caring for the child, a child of infinite worth and potential.