Learning Objectives

At the end of this lesson students should be able to:

1. Understand the possible risks of using herbs during pregnancy
2. Describe the unique risks of using herbs during the first trimester of pregnancy
3. List the categories of herbs that are contraindicated for use during pregnancy
4. Describe how form, dose, and duration of using an herb affect its safety during pregnancy
5. Differentiate between the terms teratogen, mutagen, emmenagogue, and abortifacient
6. Provide examples of the most commonly available and utilized emmenagogues and abortifacients
7. List the common complaints and medical problems associated with each trimester
8. List the warning signs that might occur during pregnancy that signal the need for immediate medical attention
9. Recognize commonly used herbs that are contraindicated for ingestion in pregnancy

Note that herb safety during breastfeeding is discussed in Lesson 41: Postpartum Care, Breastfeeding Problems, and Postnatal Depression.

Required Reading

Botanical Medicine for Women’s Health (Romm)
- Pregnancy and Botanical Medicine Use and Safety

Obstetrics and Gynecology at a Glance (Norwitz and Schorge)
- Embryology and Early Fetal Development
- Fetal Physiology
- Maternal Adaptation to Pregnancy

Key Terms

Be sure to familiarize yourself with the definitions for all key terms. These can be found in the course resources or using an online medical dictionary.

Abortifacient
Alkaloid
Adulteration
Contamination
Diethylstilbestrol (DES)
Embryo
Emmenagogue
Fetus
First trimester
Hepatotoxicity
Mutagen
Neet
Parturient
Partus preparator
Placenta
Phytoestrogen
Second trimester
Teratogen
Third trimester
Uterine stimulant
Key Botanicals for this Lesson

Students are not expected to know the actions, common uses, forms of administration, etc, of every herb on the list presented in Table 1. Herbs Contraindicated for Use in Pregnancy. However, students should refer to this list or another reliable list (i.e., in the Botanical Safety Handbook, 2nd edition) when consulting with pregnant and nursing women about the use of herbs. A more thorough ranking of each of these herbs can be found in the corresponding chapter of Botanical Medicine for Women’s Health. Students should be familiar enough with the names of the herbs on this list that if you hear one of these herbs listed in a pregnant woman’s herbal formula, a red flag goes up for you.

Introduction

Herbs have been used for pregnancy, birth, and lactation since time immemorial, with texts and treatises dating at least back to ancient Egypt. Herbal medicines are still commonly used by childbearing women for a variety of reasons, for example, ginger root to treat “morning sickness,” raspberry leaf as a uterine tonic, or echinacea for colds. Studies have demonstrated the safety of these commonly used herbs during pregnancy. Some pregnant women prefer botanical therapies to pharmaceutical medications, believing them to be safer and gentler or because they feel that the use of herbs is more philosophically harmonious with their overall belief that childbearing is a natural event. There is also considerable evidence that modern obstetric professionals (midwives, obstetricians) are prescribing herbs in pregnancy, particularly for labor stimulation, but for other concerns as well. Because pregnancy is the most sensitive time in human development and many substances cross the placenta, questions have been raised about the safety of using herbs during pregnancy. Unfortunately, most herbs have not been evaluated for safety in the childbearing cycle, thus there is little scientific evidence to support — or refute — their safety during this time. Ethical considerations surrounding experimentation on pregnant women and the need for large sample sizes severely limit human clinical investigation during pregnancy. This lesson elucidates some of the key issues surrounding the use of herbs during pregnancy.

Herbalists have a fantastic opportunity to participate in helping women to achieve optimal pregnancy health through education about nutrition, lifestyle, and cultivating positive attitudes about childbearing as a natural process. Many common pregnancy complaints and even a few of the more serious problems that can arise during pregnancy can often be effectively addressed with herbal medicines. Since pregnancy is such a highly sensitive time for the developing embryo/fetus and a time when complications in the mother can have serious and even quickly dire or fatal consequences for the mother, baby, or both, a great deal of care and knowledge, and a good obstetric and midwifery referral network are required if one is to include pregnant women in their client base.
Modern Obstetrics: A Commentary

The herbalist does not practice in a vacuum that exists outside the medical context in which the childbearing process has been steeped. It is therefore important for the herbalist to have some understanding of the medical context of childbearing, a context in which most pregnant patients seeking the herbalist’s care will be participating. It is against the backdrop of childbearing being treated as a disease that the herbalist works in modern practice. It is this very context which causes great suspicion that herbs are at once dangerous or ineffective in the eyes of most modern obstetric practitioners. Aside from midwives, who generally possess an inherent trust in the natural, physiologic processes of childbearing and the natural remedies, notably herbs, that can support these processes and restore comfort when complaints arise, most practitioners will discourage the use of herbs during the childbearing cycle.

The past few decades have wrought numerous improvements in obstetric care, yet these same improvements have led to an increased presence of technology in childbirth, a prevalence of obstetric interventions, and an increased reliance on technological solutions. Clearly there are times when medical interventions in pregnancy are warranted, however the safety and efficacy of the routine use of interventional and technological approaches is not clear. Indeed, there is a striking lack of evidence-based medicine in obstetrics. Furthermore, there is little emphasis on health education and the prevention of problems through healthful diet, exercise, and lifestyle in conventional obstetric medicine. There is a striking disregard for the benefit of natural therapies in spite of the fact that herbs are used worldwide by midwives, and by childbearing women themselves, and even the World Health Organization has encouraged the local promotion of midwifery and traditional medicine practices. Obstetrics cannot improve upon nature, yet pregnancy and birth are seen as inherently dangerous processes from which women need to be protected.

Modern obstetrics, by its very interference in the birth process has accomplished less by trying to do more. Marsden Wagner, MD. former Director of the World Health Organization’s European Regional Office, remarked at an international medical conference that hospital births “endanger mothers and babies — primarily because of their impersonal procedures and overuse of technology and drugs”. The list of routine interventions and the frequency of their application is steadily increasing, particularly in the United States. Between 1984 and 1987 the following increases were shown: use of diagnostic ultrasound went up by 350 percent; use of fetal monitoring increased by 427 percent; manually assisted delivery increased 300 percent; vacuum extraction went up 132 percent; artificial rupture of membranes increased by 107 percent; medical labor induction increased 162 percent; repair of lacerations increased 39 percent; and cesarean sections increased 16 percent. Similarly, pregnant women are subjected to routine and many of which may be unnecessary for most women.

Cesarean sections, episiotomy, repair of obstetric lacerations, and artificial rupture of membranes accounted for eighteen percent of all surgical procedures that were done in hospitals in 1990. Cesarean section is the most frequently performed surgery in the United States, and the most frequently performed unnecessary surgery. It is estimated that 473,000 unnecessary cesareans were done in the United States in 1991 alone. More than two dozen women are estimated to have died as a result of this procedure during that year. Current national statistics reveal a cesarean section rate that is alarming: nearly one in four women having a baby in the United States will undergo a cesarean. It is the major surgical operation performed in U.S. hospitals, done even more frequently than tonsillectomy, hysterectomy, hernia repair,
and gall bladder surgery. When I interviewed for residency positions in obstetrics and gynecology, most hospitals in the New England states in which I interviewed had c-section rates of 40 percent. The lowest c-section rate I encountered was 38% at one hospital. Furthermore, new techniques are regularly being adopted, though they may not have been thoroughly evaluated for long-term safety. Sophisticated diagnostic techniques may lead to interventions that are not proven to be remedial. According to researchers, when normal pregnancy is treated like a disease, it has a very poor outcome.

Undoubtedly under specific circumstances, obstetric technologies outweigh the risks associated with them. They can be life-saving to the mother, baby, or both and all women should have access to these technologies. However, what tends to happen when access to technology is widely available and when there are motives for their use beyond simple health care need (fear of lawsuits, malpractice insurance costs, driving need for profit), is that these technologies become broadly applied in a population where their use is not warranted. It is up to the herbalist specializing in the care of childbearing women to familiarize him/herself with the advantages and disadvantages of various obstetric tests and interventions, as well as the normal value ranges for these tests, in order to intelligently assist your clients in making informed choices in prenatal, intranatal, and postnatal care.

The Midwifery (Herbal) and Medical Models of Care

The midwifery model is a valuable paradigm for herbalists to consider and adopt, as it presents a woman (client)-centered model of care. For those planning to specialize in gynecological and obstetric botanical medicine, or simply planning to work regularly with childbearing women, it establishes a fundamental respect for the natural and powerful physiologic process of childbearing. It is inherent within the herbalist model to treat clients with respect for the body’s intrinsic desire and ability to heal; the midwifery model of care reflects and reinforces this core belief of herbalism. In fact, one could almost substitute the word midwifery for herbal in this context as the philosophies of the two disciplines overlap so greatly. The midwifery model, like the herbalist’s model, establishes a partnership framework for care rather than the hierarchical “patient-doctor” relationship typical of allopathic medicine.

The Midwifery (Herbal) Model

* The goal is to assist the woman toward self-care as a healthy person in a state of normalcy.
* The mother and baby are a unit whose medical and emotional needs are complementary; what meets the needs of one meets the needs of both.
* The woman’s body is a well-functioning home for herself and her baby.
* The woman maintains power and authority over herself.

The Medical Model

* The woman is encouraged to be dependent and is treated as potentially ill and in an abnormal state.
* The mother and baby are separate patients whose medical and emotional needs may conflict; the mother’s emotional needs may jeopardize the baby’s health.
* The woman’s body is a mechanical organism that needs fixing.
* Power and authority are handed over to the institution.
* Responsibility is in the hands of the woman herself, shared with her midwife. Needs are best known by the woman herself.

* The emphasis is on pregnancy and birth as times of physical/psychological/emotional growth for the mother and fetus.

* Childbirth is seen as an activity that the healthy woman engages in.

* The midwife (herbalist) guides and educates the woman during her experience.

* Childbirth is seen as an event in the lives of the woman and her family. The woman’s active birth-giving is enhanced by education, support, and skilled care.

* Responsibility is assumed by the physician; needs and workings are best known by the physician.

* The emphasis is on pregnancy and birth as times of stress and danger.

* Childbirth is seen as an occasion for the provision of medical services.

* The physician manages the care of the woman.

* Childbirth is seen as a surgical procedure (obstetrics is a surgical speciality) performed on the pelvic region of a woman, involving the removal of a fetus and placenta.

**During pregnancy, labor, and birth this translates into methods of care as such:**

* The best prenatal care is empathetic, caring.

* The health of the baby is insured through the physical and emotional health of the mother and attunement to the baby.

* The uterus is seen as a responsive part of a whole woman.

* Experiential and emotional knowledge is seen as equally or more important than technical knowledge.

* Labor can be short or can take several days.

* Labor follows its own rhythms.

* Environmental ambience is key to safe birth.

* Labor pain is acceptable, normal.

* The best prenatal care is objective, scientific.

* The health of the baby during pregnancy is insured through drugs, tests, and procedures.

* The uterus is seen as an involuntary muscle.

* Only technical knowledge is valued.

* Birth must happen within 26 hours.

* Once labor begins it must progress steadily or intervention is necessary.

* Environmental ambience is irrelevant.

* Labor pain is unacceptable, abnormal.
* A woman in labor can do what she feels like: moving, eating, sexual intimacy with partner, sleeping are all appropriate.

* A woman in bed, hooked up to machines with frequent exams by staff is appropriate.

* The midwife (herbalist) supports, assists.

* The doctor controls.

* The doctor delivers the baby.

Adapted from *Guide to Midwifery Care* by Aviva Jill Romm (The Crossing Press, 1998). The author wishes to credit Robbie Davis-Floyd and Barbara Katz Rothman, for developing these concepts, and as well as Elizabeth Hallett and Karen Ehlich for their format in the booklet *Midwife Means With Woman*.

### Herbs in Pregnancy: What You Need to Know

The use of herbs during the childbearing cycle often presents a significant dilemma for both the childbearing woman and the conscientious women’s health herbalist. On one hand, childbearing women commonly experience a number of minor common complaints ranging from nausea during pregnancy to pain during labor to hemorrhoids in the postnatal period, for which the use of simple, effective, and safe natural remedies is frequently more preferable than many over-the-counter (OTC) and prescription pharmaceutical preparations. On the other hand, perhaps more during the childbearing cycle than at any other time, there is a need for reassurance – even certainty – of the safety of the therapies that a childbearing woman is considering using or that her health provider is considering prescribing. Unfortunately, that certainty is not always available, and pregnant women and health professionals must make tough choices.

### Risks associated with the use of herbs during pregnancy include:

1. Toxicity to the mother which might indirectly affect the embryo/fetus
2. Direct teratogenicity, mutagenicity, or fetal toxicity
3. Abortifacient activity
4. Poor neonatal outcomes
5. Delayed administration of necessary medical therapy in favor of herbs, regardless of their safety.

In general, most herbs on the market in the US have a relatively high track record of safety with few case reports of adverse effects. Negative outcomes have been reported for only a very limited number of herbal products used by parturient women. When apparent adverse events have occurred cause and effect have been difficult to establish due to a wide-range of confounding factors. Adverse events have typically involved the consumption of known toxic herbs, adulterants, or inappropriate use or dosage of specific botanical therapies. However, lack of proof of harm is not synonymous with proof of safety. Some of the harmful effects of herbs may not be readily apparent until after use has been discontinued, or may only occur with cumulative use. Some researchers therefore believe that in the absence of scientific proof of safety, herbs should be entirely avoided during pregnancy. However, this would exclude the use of most herbs, even though there is a corresponding lack of any evidence that most are harmful, and for many, a significant body of traditional or historic use suggesting safety. Others continue to use herbs based on historical data and empirical evidence, tempered by the knowledge that many pharmaceutical preparations recommended during pregnancy also carry unknown risks.
Herbs and spices are consumed daily around the world by pregnant women as a regular part of the diet. Taken in small amounts and using only herbs that are known to be safe during pregnancy, they can provide relief for many minor pregnancy complaints, and in expert hands, can also be used for more complex pregnancy-related problems. However, herbs are also potent medicinal agents, and therefore great care and caution is advised for their use during pregnancy. Whenever possible, the use of herbs should be avoided during the first trimester which is a critical period of embryonic development; if it is necessary to use herbs during this time, only those herbs with no known teratogenic, mutagenic, or abortifacient properties should be used, and only in the lowest possible therapeutic doses.

While many herbal remedies are gentle and safe, they are also pharmacologically active agents that should be administered with care. Consider the following key points when considering the use of botanical medicines during pregnancy:

- Natural is not synonymous with harmless or safe – many botanical medicines contain potent pharmacological substances;
- Unless medically indicated, avoid use of herbs (and drugs) during the first trimester;
- Know each herb you are using by clearly understanding the side-effects and the specific contraindications for the use of those herbs during pregnancy;
- Physiologic changes of pregnancy present unique considerations for the herbalist:
  a. Many herbal constituents consumed by the mother can pass through the placenta and reach the fetus, particularly those with high volatile oil content;
  b. Herbs can have unknown and idiosyncratic effects in the pregnant patient, and should be treated as potent medicines during pregnancy;
  c. Hormonal effects of herbs may have an impact on the developing fetus;
  d. Herbs can disrupt pregnancy, for example, emmenagogic effects of certain herbs;
  e. Many herbs have a history of safe use, but the teratogenicity and physiologic effects of many herbs on the developing fetus are unknown, thus care should be exercised in prescribing herbs, particularly in the first trimester;
  f. Bowel transit time is decreased in the pregnant woman, thus the absorption rate of many herbs might actually be higher than usual, and thus smaller dosing may be appropriate, increasing only enough to reach the minimum effective dose;
  g. Liver metabolism and renal thresholds are altered during pregnancy, and therefore, care must be taken to avoid herbs which accumulate in the body or which are hard to eliminate, such as herbs with a high resin content, for example Commiphora mol mol, or which depend upon liver detoxification phases to ensure safety;
  h. Many herbs are contraindicated during pregnancy due to their incompatibility/interference with the physiological necessities of pregnancy, toxicity, or the development of the embryo/fetus. See below for a discussion of these herbs.
Additional Considerations When Using Herbs During Pregnancy

- Controls over the manufacturing of herbs, particularly in but not limited to the United States, do not always prevent adulteration or contamination of herbal products, leading to additional potential problems. One example was the adulteration of Periploca sepium herb in place of Eleutherococcus ginseng (reported in Canada) resulting in a baby with birth defects due to the androgenizing effects of the herb on the developing fetus. Another example was the recent detection of colchicines in the placental blood of a number of newborns in Michigan due to ginkgo products that had been contaminated with colchicines.

- Many herbal remedies are gentler and safer than pharmaceutical/interventions for pregnant women and babies in utero/newborn. However, many of the herbs that are used for the treatment of prenatal complaints and complications are not well-studied, if at all, in the pregnant population (keep in mind that many drugs used in obstetrics are not proven safe for use during pregnancy, and several are used off label during pregnancy and birth). Therefore, while we as herbalists and other health care providers might assume that Dioscorea villosa is a safer intestinal antispasmodic and anti-inflammatory than many conventional prescription medications for the treatment of irritable bowel syndrome during pregnancy, and in all likelihood it is, it is nonetheless hard to prove safety and efficacy without clinical trials to back up our empirical evidence. And while we might consider something safe because we have used it even dozens of times and haven’t ever seen an adverse reaction, we must remember that it can take administering many substances in over 50,000 subjects before an adverse reaction will be apparent in that population. Just because it seems safe doesn’t mean it definitely is. Always bear in mind that within the pregnant mother’s body is another “patient” in whom you cannot easily see if there is an adverse reaction to the herbs.

- Practitioners can use what I call “cautious confidence” which means that an herbalist should not be afraid to work with pregnant women but should clearly understand the physiology of pregnancy and should have a clear sense of personal abilities when diagnosing and treating pregnant women. Unless well versed in both the natural and pathologic processes of pregnancy, as well as the ability to accurately and effectively assess conditions that arise during the childbearing cycle, it is best to work directly in conjunction with a midwife or sympathetic obstetrician or family practitioner if a problem is serious, not improving, or worsening.

- Preventive treatment and early treatment with herbs is very effective for many prenatal problems. Early treatment at the onset of a problem maximizes the chance that an herbal protocol will be effective, allows for use of the mildest range of herbs, and allows for shortest duration of herbal treatment with the lowest possible doses. In other words, early treatment allows for the least drastic care measures.

- It is essential to understand the significance of specific symptoms during pregnancy and the condition being treated. For example, swelling during pregnancy can have a unique pathophysiological significance during pregnancy that is not relevant in the non-pregnant patient, as can hypertension, vomiting, headaches, abdominal cramping, and vaginal bleeding, to name a few. Therefore, the herbalist treating pregnant women must extend their scope of study to include the possible complications of pregnancy, the signs and symptoms of these, and the appropriate time for medical referral and intervention.

- It is important to know your herbs thoroughly, including side effects and contraindications for herbs with pregnant women and to work simply and gently whenever possible.
Women are often already using botanical remedies through word-of-mouth or self-prescribing – the wise practitioner will recognize this fact and choose to work with the patient’s desires and needs rather than alienate the patient through judgment or cause harm through ignorance.

Regular prenatal visits with an appropriately trained professional are of paramount importance. The herbalist is not a substitute for a midwife or other childbirth professional for routine prenatal care.

This is a good time to review fetal development and the normal physiology in Obstetrics and Gynecology at a Glance.

Herbs Contraindicated In Pregnancy

The herbal literature is rife with lists of herbs contraindicated in pregnancy and lactation. There are limitations inherent in most of these lists, particularly in their lack of specifics as to how and when each herb is contraindicated. Herbs may sometimes be broadly contraindicated in pregnancy yet in actuality are only contextually contraindicated; for example they are absolutely contraindicated during the first and second trimesters but may be reasonably used during labor, or they may be safe in small doses for a very limited duration. Culinary herbs, appearing on many contraindicated lists, when used in moderation as food seasonings represent no harm to the fetus or mother. Herbs such as aloe vera, calendula, and even comfrey may be used topically with no risk but are to be avoided for internal use, yet are contraindicated on such lists with no differentiation, leading to confusion about safety. Certain contraindications have become pervasive myths, for example the frequent contraindication of chamomile in pregnancy due to its alleged action as an abortifacient. In fact, chamomile provides an excellent example of how misapplication of a scientific finding can lead to unjustified contraindication of a safe herb. A study conducted in 1979 found teratogenic effects using a concentrated extract of -bisabolol at high doses. No teratogenic effects were seen at lower doses and the dose of the oil constituent required to cause teratogenicity was far greater than it would ever be possible for someone drinking the tea to ever approximate. However, based on this single study, chamomile was erroneously contraindicated for consumption during pregnancy.

Finally, herbs may be contraindicated based on theoretical reasons, for example, ashwagandha, which in traditional Ayurvedic medicine was used to prevent miscarriage, has been contraindicated on some lists on the basis that it might cause uterine contractions, predicated on a single anecdotal report, with no details on duration or mode of use, nor dose, that has been reiterated several times in the scientific literature. To complicate matters, certain herbs that are contraindicated by western herbalists and western scientific research for use during pregnancy are regularly used in traditional medicine from non-western cultures, for example, dong quai (Angelica sinensis) is prescribed as a blood tonic for pregnant women in China, and listed in China and Japan in official formulae for the prevention of miscarriage, yet is considered contraindicated in western herbal medicine. Of particular note, since the publication of the first edition of Botanical Medicine for Women’s Health, both chastetree and uva ursi have been found to be safe when used appropriately during pregnancy – vitex for prevention of miscarriage associated with low progesterone and uva ursi for short term, non-first trimester treatment of urinary tract infections, though neither of these are medically endorsed treatments.
The following list is a composite of those herbs most commonly contraindicated for use during pregnancy. While there are a number of herbs on this list that may be used in small quantities for certain conditions, they should only be used under the supervision of a practitioner qualified in the use of herbs during pregnancy. Certain herbs that are contraindicated by western herbalists and western scientific research for use during pregnancy are regularly used in other countries. However, it is prudent to use such herbs cautiously if at all during pregnancy, and whenever possible to use them within traditional guidelines and formulae. Pregnancy is not an advisable time to experiment with contraindicated herbs.

Table 1. Herbs Contraindicated for Use in Pregnancy

A number of herbs that are contraindicated for oral ingestion during pregnancy may still be used topically or even inserted vaginally, for example, thyme or oregano essential oils for the treatment of vaginitis. Use of seasoning herbs, for example, basil or small amounts of sage, is not contraindicated.

The following list is the most up-to-date reference available other than the information in the American Herbal Products Association’s *Botanical Safety Handbook*, 2nd Edition, from which this is based. Along with Tieraona Low Dog, I served as the expert consultant on the committee that revised the handbook. Based on an exhaustive literature review of in vitro, animal, and available human studies, we stratified botanical safety for many commonly and lesser used herbs, including recommendations for pregnancy and lactation. I highly recommend purchasing a copy (my work on it was strictly as a volunteer and I make no money from sales) or paying for access through the AHPA website.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Botanical Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achyranthes</td>
<td>Acyrantes bidentata</td>
</tr>
<tr>
<td>Albizia</td>
<td>Albizia julibrissin</td>
</tr>
<tr>
<td>Alder buckthorn</td>
<td>Rhamnus frangula</td>
</tr>
<tr>
<td>Aloe (dried juice)</td>
<td>Aloe spp.</td>
</tr>
<tr>
<td>Andrographis</td>
<td>Andrographis paniculata</td>
</tr>
<tr>
<td>Angelica</td>
<td>Angelica archangelica</td>
</tr>
<tr>
<td>Arnica</td>
<td>Arnica Montana</td>
</tr>
<tr>
<td>Barberry</td>
<td>Berberis vulgaris</td>
</tr>
<tr>
<td>Basil leaf</td>
<td>Ocimum basilicum</td>
</tr>
<tr>
<td>Bethroot</td>
<td>Trillium spp.</td>
</tr>
<tr>
<td>Birthwort</td>
<td>Aristolochia clematitis</td>
</tr>
<tr>
<td>Black Cohosh</td>
<td>Cimicifuga racemosa</td>
</tr>
<tr>
<td>Bladderwrack</td>
<td>Fucus vesiculosus</td>
</tr>
<tr>
<td>Blessed thistle</td>
<td>Carbenia benedicta</td>
</tr>
<tr>
<td>Blood root</td>
<td>Sanguinaria canadensis</td>
</tr>
<tr>
<td>Blue Cohosh</td>
<td>Caulophyllum thalictroides</td>
</tr>
<tr>
<td>Blue flag</td>
<td>Iris versicolor</td>
</tr>
<tr>
<td>Blue vervain</td>
<td>Verbena hastate</td>
</tr>
<tr>
<td>Borage</td>
<td>Borago officinalis</td>
</tr>
</tbody>
</table>
Broom
Buchu
Buckthorn
Bugleweed
Buttermilk
Butternut
Calamus
Calendula
California poppy
Cascara sagrada
Celandine
Chaparral
Cola
Coltsfoot
Comfrey
Corydalis
Cotton root
Cowslip
Damiana
Dong Quai
Elecampane
Ephedra (Ma Huang)
Fenugreek
Feverfew
Gelsemium
Ginkgo
Ginseng
Goldenseal
Gotu kola
Goat’s rue
Guarana
Guggul
Hops
Horsetail
Ipecac
Juniper berries
Kava
Licorice
Lily of the valley
Lobelia
Male fern
Mistletoe
Motherwort
Sarphamnus scoparius
Barosma betulina
Rhamnus cathartica
Lycopus spp.
Petasites hybridus
Juglans canadensis
Acorus calamus
Calendula officinalis
Eschscholzia californica
Rhamnus purshiana
Chelidonium majus
Larrea tridentate
Cola nitida
Tussilago farfara
Symphytum officinale
Corydalis yanhusuo
Gossypium herbaceum
Primula veris
Turnera aphrodisiaca
Angelica sinensis
Inula helenium
Ephedra vulgaris
Trigonella foenum-graecum
Tanacetum parthenium
Gelsemium sempervirens
Ginkgo biloba
Panax quinquefolium
Hydrastis canadensis
Hydrocotyle asiatica
Galega officinalis
Paullinia cupana
Commiphora mukul
Humulus lupulus
Equisetum spp.
Ipecac ipecachuana
Juniperis communis
Piper methysticum
Glycyrrhiza glabra
Convallaria magalis
Lobelia inflata
Dryopteris felix-mas
Viscum album
Leonurus cardiaca
There are a few basic groups of herbs, which are clearly, and consistently contraindicated during pregnancy (See Table 2. Herb Categories to Avoid During Pregnancy). One such group is those herbs containing pyrrolizidine alkaloids (PAs), as they are well-established to be causal in the etiology of veno-occlusive liver disease (VOD) in the fetus when the herb is ingested regularly by a pregnant woman. Comfrey, coltsfoot, and borage are the main herbs that have been implicated, containing varying amounts of PAs. Petasites, now more commonly available for asthma treatment, also contains PAs. These herbs should therefore be avoided for internal use during pregnancy and should be used only short-term topically when there is broken skin.

Herbs which have strong hormonal properties as well as those which are known to promote menstruation (emmenagogues) are to be completely avoided; stimulating laxatives, anthelmintics and vermifuges, and herbs with a strong effect on the central nervous system are contraindicated, as is the internal use of all essential oils. Naturally any known toxic herbs should be avoided.
Table 2. Herb Categories to Avoid During Pregnancy

The herbs listed under each category are representative examples and are not exhaustive. Additional herbs may fall into any of these categories.

**Abortifacients and Emmenagogues**

- Tansy
- Safflower*
- Rue
- Mugwort
- Yarrow*

**Essential Oils and Volatile Oils** *

- Thuja
- Scotch broom
- Angelica
- Wormwood
- Pennyroyal essential oil

**Teratogens**

- Lupinus spp.
- Conium spp.
- Nicotiana spp.
- Trachymene spp.
- Prunus spp.
- Senecio spp.

**Alkaloids**

- Veratrum spp.
- Solanum spp.
- Ferula spp.
- Datura
- Sorghum

**Teratogens**

- Comfrey*
- Borage
- Barberry
- Oregon grape*

**Stimulating Laxatives**

- Cascara sagrada
- Buckthorn
- Rhubarb

**Phytoestrogens**

- Castor oil
- Aloe*

**Nervous System Stimulants/Depressants**

- Ephedra
- Guarana
- Coffee
- Kava

* Avoid internal use; external use may be acceptable under the guidance of an experienced botanical medicine practitioner.
Forms of Administration of Herbs in Pregnancy

Botanical medicines can be administered in a variety of forms. Those most commonly used in pregnancy are:

**Internally:** teas, infusions, syrups, tinctures (alcohol and glycerol based), and capsules

**Externally:** oils, baths, compresses, peri-washes, creams or salves

Each of the internal forms offers specific advantages and disadvantages. For example, infusions are mild and effective and therefore a generally safe method of administration. Water is not as effective at extracting plant alkaloids, which are readily extracted when alcohol is used as a solvent. Thus water-based preparations are often milder and thereby safer. Water-based preparations also allow ease in evaporating off strong essential oils from teas which are considered safe for general use (i.e., chamomile, mints), but which do contain essential oil fractions. A clear disadvantage of water-based preparations is that the volume of liquid (i.e., tea) one must consume for an effective dose, may be prohibitive to the taste sensitivities of a pregnant woman. Decoctions are concentrated water-based preparations made by simmering or long-steeping of a larger quantity of herbs to water than is used for tea. They can be further simmered down to a concentrate to which a sweetener is added for flavor, thickening, and as a preservative, allowing tablespoon-sized doses rather than cup-sized doses of herbs to be administrated.

Tinctures offer the advantage of being highly concentrated and are self-preserved, therefore allowing the client to take them in small doses, and without the effort of preparation. Thus they are easy to consume and convenient. This often increases adherence to a protocol. However, because the water-alcohol combination is such an effective solvent, the medicines contain a full array of plant compounds, many of which may be undesirable for consumption during pregnancy. Additionally, some practitioner and patients are uncomfortable with the use of alcohol during pregnancy, though the volume of alcohol per dose is typically very small (for example, in a 5 mL dose of a 40% alcohol tincture, the patient is receiving 2 mL of alcohol; even at 3 doses per day, this is 1/5 of an ounce of alcohol per day).

Capsules and pills, unless made from liquid extracts of freshly milled herb, are notoriously not fresh, and many herbalists consider them less than reliable medicines, preferring the use of water-based and alcohol-based extracts.

Herb product quality and safety is another area to consider when prescribing herbs for pregnant women. Few standards dictate herbal product manufacturing in this country, and while individual manufacturers may adhere to good manufacturing practices (GMPs), it cannot be assumed that this is the case in the whole of the botanical products industry. There is little accountability demanded of herbal products manufacturers, leaving the practitioner and client unsure of actual product ingredients and product quality. It is incumbent upon the practitioner to determine which products are backed by quality assurance standards and manufacturing ethics, as well as some knowledge of the clinical applications of the products themselves. Practitioners might wish to contact the American Herbal Products Association (AHPA), an organization that exists to promote the responsible commerce of herbal products, for information on quality herb product manufacturers and standards and regulations governing the production and sale of herbs in the United States.
Pregnancy by Trimester

The first trimester of pregnancy technically begins on the first day of the last menstrual period and extends through approximately the first three lunar months of pregnancy (to 14 weeks of pregnancy). Implantation of the fetus into the endometrium of the uterus occurs approximately one week after conception. This is often referred to as the period of adjustment during pregnancy, as even women who have deliberately become pregnant may be overwhelmed by the awareness of the responsibility they have taken on in caring for the development and well-being of another human life. Thus this period may be filled with excitement, but there is generally also some anxiety and ambivalence as a woman makes the psycho-emotional adjustment from being a woman to being a woman who is also now a mother. This is also a period of rapid physical adjustment as the woman’s body undergoes enormous physiological changes to accommodate for the pregnancy. Hormone levels are making dramatic shifts as the ovaries (hopefully) maintain elevated progesterone levels to support the maintenance of the rich endometrium that formed in the follicular phase of the menstrual cycle to potentially nourish an embryo, and these levels will be maintained until the placenta can fully assume this role in the late first trimester. Estrogen is causing rapid hypertrophy of breast tissue, as well as engorgement of other tissue, and the woman may experience significant nausea, skin changes, and bowel changes as a result of these increased hormone levels and the burden placed upon the liver as it keeps up with their metabolism. The first trimester often also feels like a fragile time for many women, with an estimated 10 to 15 percent of all pregnancies ending in spontaneous abortion.

The sensitive herbalist can play a great role in helping the pregnant woman understand the normalcy of many of the changes she is experiencing during this time of rapid change, as well as guiding her to healthful choices during this time when the baby passes through the embryonic phase of systemic development into the fetal phase of maturation. The herbalist can be helpful in reducing some of the common discomforts of the first trimester, as well as helping to support the woman’s body in maintaining the pregnancy. Should the pregnancy become non-viable as a result of miscarriage, the herbalist can assist the woman in the completion of miscarriage in a safe and dignified way, sensitive to her physical, emotional, and psycho-social well being.

By the second and third trimesters, most women have adjusted to the reality that they are going to be mothers, and are filled with anticipation, particularly as they begin to feel the movements of the baby. During this time, they are also free of the overwhelming nausea and fatigue so common during the first trimester. The second trimester tends to bring a lull in some of the more dramatic discomforts that accompany the first trimester and the late third trimester. Astoundingly, by mid-pregnancy, the maternal plasma volume has reached a volume that is 50% greater than non-pregnant levels, just one reflection of the dramatic changes a woman’s body goes through during pregnancy. By mid- to late third trimester women are again experiencing more minor discomforts. In fact, during both of these trimesters, women still experience both a range of physical discomforts, as well health problems. Some serious health problems that can arise during pregnancy are especially likely to become evident or symptomatic during the last trimester, including metabolic toxemia, hypertension, and bleeding from placenta previa. Most of these more serious problems, once manifest in late pregnancy, require medical care (sometimes on an emergency basis) or a combination of medical and botanical therapies. They are generally not effectively treated solely with botanical therapies. Below you will find lists of some of the common complaints and common medical problems of the second and third trimesters, followed by case histories for specific concerns.
Common Complaints of the First Trimester

Emotional Swings  Morning Sickness  Sore Breasts
Fatigue  Headache*

Medical Problems of First Trimester

*Hyperemesis gravidarum  Ectopic Pregnancy
Threatened Miscarriage  Inevitable Miscarriage

Common Complaints of the Second and Third Trimesters

Anxiety/Insomnia  Backache  Sciatica
Vaginal Infections  Colds, flu  Constipation
Edema  Fibroids  Heartburn
Hemorrhoids  Itchiness  Stretch marks
Urinary Incontinence  Varicosities

Common Medical Problems of the Second and Third Trimesters

Anemia  UTI  Hypertension
Premature labor  Postdatism  Toxemia
Beta Strep Infection (GBS)  Breech baby  Herpes

Warning/Danger Signs During Pregnancy

The following signs at any stage of pregnancy suggest that there may be an urgent and serious medical problem. Should you be presented with a client with any of these signs, immediately refer to a competent obstetrician or midwife for assessment and appropriate medical intervention.

- Persistent vaginal bleeding
- *Initial* outbreak of herpes blisters during the first trimester
- Severe pelvic or abdominal pain
- Persistent, severe mid-back pain
- Edema of the hands and face
- Severe headaches, blurry vision, or epigastric pain
- Rupture of membranes prior to 37 weeks pregnancy
- Regular uterine contractions prior to 37 weeks pregnancy
- Cessation of fetal movement
The Use of Nutritive Herbs During Pregnancy

During the first trimester it is preferable, due to risks of teratogenicity and mutagenicity during early stages of fetal development, to avoid the use of herbs unless medically indicated. By the second trimester, however, when the formative stages of fetal development have mostly been accomplished, it is reasonable to use herbs for nutritive purposes should the pregnant woman so desire, or should the practitioner deem it likely to have benefit for the individual client. Used thus, herbs are commonly referred to as “tonics.” There are many herbs that can be used safely as tonics during pregnancy, not only providing additional vitamins and minerals to the diet, but possibly improving uterine tone and functioning in other systems such as the liver, digestive system, and urogenital tract. Herbs derive nutrients from the soil that many of our more common foods may be lacking, and because of their unique compositions, herbs don’t usually leave women feeling nauseated or constipated, as do many vitamin and mineral supplements, and the nutrients are more easily assimilated. Herbs are inexpensive, and the daily practice of drinking nourishing herbal infusions can be a ritual affirming a woman’s desire for health throughout her pregnancy. Nonetheless, it is still always preferable to use herbs, even common nutritive herbs, on an individual basis, rather than as a routine in the clinic.

A Word About Nutrition

Optimal nutrition is the cornerstone of a healthy pregnancy and improving nutrition is often the most valuable remedial action for many pregnancy concerns. It is essential that the herbalist incorporate prenatal nutritional recommendations into treatment protocol whenever possible. This may be the only significant nutritional advice the pregnant woman receives during the course of her pregnancy if she is working with an obstetrician as her primary care provider, because in most instances such providers will only go to the extent of prescribing a prenatal vitamin and iron supplement. Many midwives will provide extensive nutrition counseling, but even then, this is not always the case.

The following selection of nutritive herbs are classic choices for promoting and maintaining pregnancy health. Following this selection is a pregnancy tea that many of my clients have enjoyed over the past 20 plus years. With the exception of red raspberry leaf there is no specific evidence supporting the safety of these herbs in pregnancy – solely because of lack of studies.

**Alfalfa:** Alfalfa has a high nutrient content, including protein, vitamins A, D, E, B6, and K, calcium, iron, magnesium, phosphorous, trace minerals, and digestive enzymes. It is the most common source of chlorophyll and is also high in carotenes. The highly nutritive nature of alfalfa makes it an excellent addition to protocol for the treatment of anemia, most often in the form of liquid chlorophyll.

**Chamomile:** German chamomile has so many properties that make it suitable for pregnant women including easing digestion and quelling nausea, relieving heartburn, reducing insomnia, promoting gentle relaxation and relief of mental tension, relieving headaches, reducing cramps, providing calcium to the diet, preventing constipation, preventing urinary tract inflammation, and relieving bowel irritability. Chamomile, when steeped for just 10-15 minutes in a covered vessel and then very slightly sweetened with honey has an exquisite taste. It can be sipped each evening before bed to induce peaceful sleep, or sipped during the day for general tonic

The following selection of nutritive herbs are classic choices for promoting and maintaining pregnancy health. Following this selection is a pregnancy tea that many of my clients have enjoyed over the past 20 plus years. With the exception of red raspberry leaf there is no specific evidence supporting the safety of these herbs in pregnancy – solely because of lack of studies.

**Alfalfa:** Alfalfa has a high nutrient content, including protein, vitamins A, D, E, B6, and K, calcium, iron, magnesium, phosphorous, trace minerals, and digestive enzymes. It is the most common source of chlorophyll and is also high in carotenes. The highly nutritive nature of alfalfa makes it an excellent addition to protocol for the treatment of anemia, most often in the form of liquid chlorophyll.

**Chamomile:** German chamomile has so many properties that make it suitable for pregnant women including easing digestion and quelling nausea, relieving heartburn, reducing insomnia, promoting gentle relaxation and relief of mental tension, relieving headaches, reducing cramps, providing calcium to the diet, preventing constipation, preventing urinary tract inflammation, and relieving bowel irritability. Chamomile, when steeped for just 10-15 minutes in a covered vessel and then very slightly sweetened with honey has an exquisite taste. It can be sipped each evening before bed to induce peaceful sleep, or sipped during the day for general tonic

**Chamomile:** German chamomile has so many properties that make it suitable for pregnant women including easing digestion and quelling nausea, relieving heartburn, reducing insomnia, promoting gentle relaxation and relief of mental tension, relieving headaches, reducing cramps, providing calcium to the diet, preventing constipation, preventing urinary tract inflammation, and relieving bowel irritability. Chamomile, when steeped for just 10-15 minutes in a covered vessel and then very slightly sweetened with honey has an exquisite taste. It can be sipped each evening before bed to induce peaceful sleep, or sipped during the day for general tonic
properties. Baths of chamomile infusion may also be taken to promote peace and relaxation. For this purpose I love to combine chamomile and lavender in an infusion and add this to the tub.

Dandelion root and leaves: Not only is dandelion a highly nutritious herb rich in potassium, iron, Vitamin A, and calcium among other minerals and vitamins, but when eating the leaves as greens or drinking the root in infusion, it is a digestive tonic, supports normal bowel flora due to its inulin content, and provides liver support, the latter property having been attributed to this herb since the 15th century. In early pregnancy dandelion tincture helps to alleviate nausea and relieve a sour feeling in the stomach, and throughout the rest of pregnancy dandelion root relieves itching of the skin and constipation. Pregnant women may wish to add fresh dandelion greens to salads or sauté them with garlic and add a dash of lemon and tamari. Tincture can also be taken for the medicinal benefits, though the nutritional value will not be very great this way. Long-term use as a food during pregnancy is considered safe and no adverse reactions are expected from the herb.

Lavender: The main use of lavender during pregnancy is as a relaxing tea and soothing addition to baths. It will promote sleep, reduce anxiety, lift depression, and calm heart palpitations. It also relieves gas and indigestion and stimulates the appetite. I generally recommend adding a pinch of lavender to chamomile tea, or add a few drops of lavender oil to the bath, especially before bed. Lavender also makes a calming addition to massage oil. The essential oil should not be used internally.

Lemon Balm: Another herbal nervine, lemon balm calms the spirit, reduces tension, and promotes excellent digestion. Lemon balm has a wonderful and delightful flavor that reflects its uplifting qualities, making it easy on the pregnant palette. It can be added to chamomile and lavender teas, or prepared alone. Lemon balm can be added to other infusions and teas to improve their flavor.

Nettles: Second to none, nettles is a pregnancy herb par excellence, supplying trace quantities of usable vitamins and minerals, promoting healthy urinary tract function, and strengthening the blood vessels reducing the likelihood of hemorrhaging at the time of birth. Nettles should be a regular addition to the diets of pregnant women, as it is very effective in nourishing the blood and preventing anemia. For optimal health take nettles infusion daily, up to one quart. To prepare steep one handful of dried nettles in a quart of boiling water for one hour. Nettles may also be prepared as a vegetable, similarly to dandelion greens (handle carefully as the leaves pack a sting which is painful to some), or taken freeze-dried in capsules. Nettles tincture is useful for remedial purposes but infusion, fresh, or freeze-dried preparations are most effective for nourishment. Freeze-dried nettle preparations are an excellent medicine for pregnant women with allergic rhinitis, eczema, and atopic conditions, reducing inflammation effectively.

Partridge berry: This herb is considered one of the best uterine tonics for pregnancy. It is also a mild nervous system tonic and an excellent strengthening herb for the urinary bladder, particularly useful for women prone to bladder infection or prolapse. It is generally given in tincture form. It was used by the Eclectic physicians to prevent miscarriage when there was a history of repeated miscarriage. Webster, in 1919, reports, “Mitchella probably stands at the head of the list when we desire to favor the reproductive power of the female organs. It has been widely valued for its use as a uterine tonic, to ease discomfort in latter pregnancy, to relieve “false pains,” to ease labor pains, “rendering the birth of the child easier, and less reliable to accidents” (Scudder 1892). Webster further stated that “there is no doubt that proper medication during pregnancy will often favor a mild and speedy delivery” (Webster 1919). There is no contemporary evidence supporting or refuting its safety in pregnancy.
Red raspberry leaves: Perhaps no other herb has such a highly proclaimed folk reputation for use during pregnancy as the leaves of the red raspberry plant. This plant was used by both native Americans and Europeans for the treatment of gynecologic complaints and to foster healthy parturition. It has been used for millennia as a pregnancy tonic; empirical use as well as clinical use by midwives suggests it is not only safe but that it improves the pregnancy and makes the labor easier. Rich in minerals (calcium, potassium, and magnesium), this herb is said to nourish the muscles, tonify the uterus, and prevent hemorrhage due to highly astringent qualities. These minerals, which are closely associated with muscle coordination, contractility, and relaxation, give raspberry leaf its effects on uterine tone and uterine muscle coordination. Studies suggest that there may be some antispasmodic properties to the leaf. Its astringent taste is unpleasant to some pregnant women, in which case it may be tempered with a small amount of spearmint leaf. It is typically taken as a daily tonic tea, from 1 cup to 1 quart per day, for the last two trimesters. It may also be taken as a postnatal tonic. There is no evidence of increased risk of miscarriage from RRL in pregnancy, however, caution is suggested with first trimester use lest its uterine tonifying affects be incidentally associated with miscarriages which are common in the general population in the first trimester.

Rose hips: High in vitamin C, a nutrient essential to the health of both the circulatory and immune systems, rose hips make both a nutritious and delicious addition to teas and may be used regularly throughout pregnancy as a beverage and as a flavoring herb for other tea.

Yellow dock: Yellow dock is a gentle laxative, and an herb typically used in formulae to improve anemia. Its anthraquinone content may be the mechanism whereby it makes dietary iron more available to the body. It prevents and gently remedies constipation, making it an overall reliable and beneficial herb for pregnant women to use throughout the second and third trimester. It can be taken in infusion or syrup for its beneficial properties as well as mineral content, or as a tincture, which will not provide many of the nutrients but will still reduce constipation. Of note, anthraquinones are generally considered to be contraindicated for use in pregnancy, however, the gentle effects and lack of abortifacient effects in pregnancy have allowed it to stay in the repertoire used by midwives.
Nourishment Tea

This is my personal favorite pregnancy beverage, nutrient supplement, and overall “partus preparator.” It has a pleasant taste, can be mixed in a large batch to have on hand for preparing tea, and is delicious both as a hot tea or a cool beverage that can be enjoyed by the whole family. Women can vary the quantities of the different ingredients, and even make their own variations by adding and omitting herbs from time to time. These herbs are considered safe for use during pregnancy, and may also be beneficial during lactation.

<table>
<thead>
<tr>
<th></th>
<th>iron</th>
<th>calcium</th>
<th>magnesium</th>
<th>potassium</th>
<th>zinc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alfalfa</td>
<td>0.87</td>
<td>299</td>
<td>76</td>
<td>400</td>
<td>-</td>
</tr>
<tr>
<td>Red Raspberry</td>
<td>3.3</td>
<td>403</td>
<td>106</td>
<td>446</td>
<td>-</td>
</tr>
<tr>
<td>Dandelion</td>
<td>52</td>
<td>960</td>
<td>150</td>
<td>3480</td>
<td>4.3</td>
</tr>
</tbody>
</table>

Mix all of the dried herbs together and store in an airtight container away from heat and light. Steep 4 Tbs herbal blend in 1 quart of boiling water for 2 hours. Strain and take 1-3 cups daily.

Summary

As an herbal educator you have an amazing opportunity to work with women as they nourish new life, and grow into a new stage in their own lives. These changes bring a variety of physical and emotional challenges to women, some of which may be eased with the appropriate use of herbal medicines. The uniquely sensitive state of the developing baby and the mother’s role in the health of the child requires specialized knowledge and a great deal of respect when using herbs for nourishment and treatment. Further lessons in this unit address specific pregnancy complaints and problems and the role of herbs in their treatment.
Select the best answer for the following multiple choice questions.

1. After ________ weeks gestation the embryo is now called a fetus.
   a. 4
   b. 6
   c. 8
   d. 10

2. Delayed bowel transit time in pregnancy means that substances stay in the bowel for a __________ period of time and are thus __________ highly absorbed.
   a. longer, more
   b. longer, less
   c. shorter, more
   d. shorter, less

3. Limited oversight of herbal products manufacturing in the US means that pregnant women face which following risk(s) when purchasing herbal products.
   a. adulteration
   b. sophistication
   c. contamination
   d. all of the above

4. Which of the following commonly appears on lists of herbs contraindicated in pregnancy and is actually a safe, gentle nervine during pregnancy?
   a. lemon balm
   b. kava kava
   c. corydalis
   d. chamomile
5. While dong quai is safely used in TCM during pregnancy in formulas to nourish the blood and even prevent miscarriage, based on what you know about dong quai, why might you think it is often found on lists of herbs contraindicated in pregnancy?

a. It is highly blood moving in the pelvis and therefore there is sometimes increased bleeding with its use.
b. It is a blood tonic and nourish the blood is contraindicated in pregnancy.
c. All TCM herbs should be avoided in pregnancy because of risks of contamination.
d. Its hormonal effects are contraindicated in pregnancy.

6. Culinary herbs such as sage and basil are safe to use in moderation as cooking spices and medicinally throughout pregnancy.

a. True
b. False

7. The following herbs are contraindicated in pregnancy because of their abortifacient effects.

a. tansy, rue, and broom
b. tansy, rue, and peppermint
c. senecio, tansy, and comfrey
d. comfrey, borage, and goldenseal

8. Comfrey, borage, and coltsfoot are contraindicated for internal use in pregnancy because they ________.

a. contain astringent properties that might interfere with nutrient absorption.
b. contain constituents that accumulate in the kidneys.
c. are overly absorbed due to the delayed bowel transit time in pregnancy.
d. contain potentially hepatotoxic PAs which can cause liver disease in mom or baby.
9. Hops, red clover, and isoflavone extracts should be used only cautiously if at all during pregnancy because they have potential effects on the __________ system of the fetus.
   a. neurologic
   b. skeletal
   c. endocrine
   d. reproductive

10. An herb commonly used for the treatment of UTI but which should not be used internally during pregnancy because of its essential oil content is __________.
   a. wormwood
   b. yarrow
   c. thuja
   d. sage

11. An oxytocic herb may have ____________.
   a. uterine stimulant activity
   b. abortifacient activity
   c. emmenagogic activity
   d. all of the above

12. ________________, a commonly used and possibly habit forming laxative over time, has often been contraindicated in pregnancy, but according to evidence in the scientific literature, is, in fact, safe to use for constipation in pregnancy.
   a. yellow dock
   b. senna
   c. buckthorn
   d. casacara sagrada
13. In general, midwives receive significant training in the use of botanicals in pregnancy.
   a. True
   b. False

14. Examples of bulk laxatives include _______ and _______.
   a. flax, psyllium
   b. senna, cascara sagrada
   c. flax, buckthorn
   d. psyllium, senna

15. Which of the following is most likely to be a complaint or complication of the second and third trimesters?
   a. UTI
   b. mood swings
   c. ectopic pregnancy
   d. threatened miscarriage

16. Herbs that are considered contraindicated for ingestion may often be used safely in topical preparations, including vaginal suppositories, during pregnancy.
   a. True
   b. False

17. A significant disadvantage in trying to give teas, infusions, and decoctions to pregnant women is _____.
   a. nausea from large amounts of warm fluid
   b. toxicity from high bioavailability in this form
   c. that preparations made this way are weak and less effective than tinctures
   d. they are not cost effective
18. Thuja should be avoided for topical and internal use during pregnancy because of potential _______.
   a. mutagenicity
   b. teratogenicity
   c. toxicity
   d. all of the above

19. Preeclampsia, hypertension, and bleeding from *placenta previa* absolutely require medical attention.
   a. True
   b. False

20. The placenta is an effective barrier keeping most herbal constituents the mother ingests away from the fetus.
   a. True
   b. False
   c. Unknown

**Fill-In the Blank**

21. During the first trimester of pregnancy, and ideally throughout all of pregnancy, only those herbs with no known ________________________, ________________________, or ________________________ properties should be used.

22. ________________________ ________________________ is the term used in this lesson to describe working with pregnant women with a healthy dose of respect for one’s limitations and knowledge, and relying on appropriate referring sources.

23. The first trimester of pregnancy lasts until the end of the _________th gestational week.

24. ________________________ laxatives may be used safely during pregnancy while ________________________ laxatives should be avoided.

25. ________________________ ________________________ (______________________) is a commonly used nervine trophorestorative that has been known to be adulterated with Teucrium.

26. ________________________ ________________________ is the botanical name for yarrow.
27. The first trimester is a period of critical ___________________________ development.

28. The _______________ test is used to determine the mutagenicity of a substance.

29. ___________________________ ________________ should not be taken during pregnancy or lactation because they can cross the placenta and also enter the breastmilk, potentially causing VOD in the fetus/infant.

30. Unless medically indicated, it is best to _____________ herbs during the ___________ trimester.

31. A woman’s plasma volume increases by ______ percent in mid-pregnancy.

32. ___________ is the cornerstone of a healthy pregnancy.

33. ___________ is the steroid hormone is responsible for intestinal slowing and resultant delayed gastric emptying.

34. There is concern that consumption of phytoestrogens during pregnancy may exert abnormal effects in on the developing fetal ___________ system.

35. Implantation of the embryo into the uterine wall usually occurs approximately _______ weeks after conception.

36. A possible teratogen in the first trimester, _______________ can lead to nicotinic poisoning in the mother if taken in excessively high doses and may be cardiotoxic to the fetus.

37. ___ to ___ percent of pregnancies end in spontaneous abortion (miscarriage).

38. ___________ Herbs are most commonly used by obstetricians and midwives for the purpose of labor _______.

39. ___________ is a gentle anthraquinone-containing laxative that is generally exempt from the rule of avoiding anthraquinone laxatives in pregnancy.

40. Whenever possible in pregnancy, the ________ possible dose range of herbs should used.
CASES, FORMULAS, and REFLECTIONS

Short Answer

1. List the five primary risks associated with using herbs during pregnancy.
2. List the warning signs of pregnancy that require immediate referral for medical attention.
3. List 5 categories of herbs contraindicated in pregnancy.
4. List the advantages and disadvantages of using tinctures during pregnancy.
5. Define teratogen.

Hands-On/Clinical

6. A pregnant woman was referred to you for your expertise in botanical medicines during pregnancy. She has insomnia and was given the following tincture formula at a local health food store and wants to know if it is safe for her to take during pregnancy. What herbs in this formula are not recommended for use during pregnancy and what would you substitute, if anything?

   - chamomile
   - lemon balm
   - kava kava
   - hops
   - lavender

7. A woman in her 3rd trimester is experiencing moderate constipation. In addition to recommending some dietary changes including more fiber and water, her obstetrician recommended that she take an herbal formula containing cascara sagrada, senna, yellow dock, and buckthorn. What adjustments would you make to this formula, if any, to create a safe and effective formula?

8. A pregnant woman comes to you with a viral upper respiratory infection and wants to know if it is safe for her to take echinacea for a few weeks. What do you tell her?

9. Create a nourishing tonic tea/infusion that a pregnant woman could safely take throughout her second and third trimesters. Make sure it will be palatable and describe how to prepare it and how often the woman can drink it.