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**COURSE NAME: POST GRADUATE DIPLOMA IN HUMAN NUTRITION**

**ASSIGNEMENT 5**

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**NUTRITION AND HIV & AIDS**

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**QUESTION ONE**

**Explain why people living with HIV do not necessarily have AIDS.**

HIV stands for Human Immunodeficiency Virus, a pathogen that works by attacking the human immune system. It belongs to a class of viruses called retroviruses and more specifically, a subgroup called lentiviruses, or viruses that cause disease slowly (**Arbeitskreis Blut. 2016)**. If a person tests positive for HIV, it does not necessarily mean that the person has AIDS. This is because HIV did not develop to the critical stage which is stage 3. HIV is a virus, and AIDS is the condition the virus may cause. An HIV infection doesn’t necessarily progress to stage 3. In fact, many people with HIV live for years without developing AIDS. Thanks to advances in treatment, a person living with HIV can expect to live a near-normal life span. According to Leonard J. (2018), AIDS is the final stage (stage 3) of HIV infection. It is diagnosed based on a CD4 cell count or the development of one or more opportunistic infections. Stage 1 is the acute stage of HIV and stage 2 is the clinical latency stage.

A diagnosis of AIDS is made by a physician according to the CDC AIDS Case Definition. A person infected with HIV may receive an AIDS diagnosis after developing one of the CDC-defined AIDS indicator illnesses. A person with HIV can also receive an AIDS diagnosis on the basis of certain blood tests (CD4 counts) and may not have experienced any serious illnesses. While a person can have an HIV infection without having AIDS, anyone diagnosed with AIDS has already contracted HIV.

Therefore, People who follow an effective treatment regimen are unlikely ever to develop AIDS. Left untreated, however, HIV continues to damage the immune system. This increases the risk of developing an opportunistic infection or health condition. Some of these conditions can be life-threatening (Leonard, J. 2018).

**QUESTION TWO**

**In your community, what are the myths associated with HIV infection?**

The classic definition of myth from folklore studies finds clearest delineation in William Bascom’s article “The Forms of Folklore: Prose Narratives” where myths are defined as tales believed as true, usually sacred, set in the distant past or other worlds or parts of the world, and with extra-human, inhuman, or heroic characters. Such myths, often described as “cosmogonic,” or “origin” myths, function to provide order or cosmology, based on “cosmic” from the Greek *kosmos* meaning order (Leeming, 1990, and Bascom, 1965). Cosmology’s concern with the order of the universe finds narrative, symbolic expression in myths, which thus often help establish important values or aspects of a culture’s worldview.  For many people, myths remain value-laden discourse that explain much about human nature.

It is not possible to transmit or contract AIDS, which is advanced or stage 3 HIV. There are many myths about HIV transmission, but debunking them can give people a better understanding of what precautions to take and when to see a doctor. Innovations in testing and treatment have greatly reduced the risk of contracting [HIV](https://www.medicalnewstoday.com/articles/17131.php) and helped those with HIV live long and healthy lives. In this question, we will discuss some common misconceptions about HIV infection in South Sudan just like in other Country. It is vital to remember that undergoing HIV treatment makes it very unlikely that a person will transmit the virus to somebody else. If a person suspects that they could have the virus or have risk factors, they may wish to talk to their doctor about testing. These myths according to Nall R. (2018) may include but not limited to following

**Myth 1: A person can contract HIV from touching someone who has it**

It is not possible to transmit or contract HIV by touching.

**Fact**: People cannot transmit or contract HIV simply by touching. Shaking hands, hugging, high-fiving, or other types of physical contact will not transmit the virus.

A person can only contract the virus if they come into contact with the following fluids from a person who already has HIV:

* Blood
* Breast milk
* Pre-seminal
* Rectal
* Remen
* Vaginal

These fluids must come into contact with another person's mucous membranes, such as in or on their rectum, vagina, penis, or mouth, for a person to be at risk of contracting HIV.

Transmission can also occur via broken skin or by using infected needles.

**Myth 2: A person can contract HIV from infected insects and animals**

**Fact**: Some people believe that they can contract HIV from infected insects. While insects can transmit some illnesses, HIV is not one of them. To transmit HIV, a mosquito or another insect would have to bite a person with HIV, then inject the blood back into another person's body. Insects do not re-inject old blood into a new person, so it is impossible for them to transmit HIV. While other forms of the disease, such as feline immunodeficiency virus (FIV), do exist, HIV only affects humans. Likewise, humans cannot contract FIV, which affects cats, or other immunodeficiency viruses in animals.

**Myth 3: A person can contract HIV from infected water**

**Fact**: HIV cannot survive in water. As a result, a person cannot contract the virus from swimming, drinking, bathing, or other activities involving water. Also, a person cannot contract HIV from the saliva, sweat, or tears of a person with HIV, providing these water-based components do not have blood in them.

**Myth 4: If a couple has HIV, they do not need to protect themselves**

People with different strains of HIV can transmit them to one another.

**Fact**: Different strains of HIV exist. Therefore, if a person and their partner have two different strains of HIV, they can transmit these to each other. Having more than one strain of HIV can make treating it more challenging, as medications target specific strains to prevent them from replicating. Also, a person can still transmit and contract [sexually transmitted infections](https://www.medicalnewstoday.com/articles/246491.php) from sex without a condom. Using a condom or another form of barrier protection during sex and taking antiretroviral medications to prevent HIV transmission are vital. This is the case even if both partners already have HIV.

**Myth 5: Blood transfusions raise the risk of HIV**

**Fact**: Doctors in the United States and many other developed regions rigorously test the blood supply for a variety of blood-related conditions, including HIV. Banked blood that is available for transfusion does not contain HIV. A person also cannot contract HIV from organ and tissue donations, as these have also undergone testing. When scientists were first identifying HIV, they recognized the symptoms of the condition but did not know what virus caused it. As a result, they did not test donated blood for HIV. Now, however, blood bank officials test donated blood to ensure that no viruses are present.

**Myth 6: A person cannot contract HIV from oral sex or deep-mouth kissing**

In rare cases, it is possible to contract HIV from open-mouth kissing if a person has blood in their mouth.

**Fact**: Doctors consider HIV transmission via open-mouth kissing (French kissing) and oral sex rare but possible. During oral sex, placing the mouth on the penis, vagina, or anus can potentially expose a person to infected fluids that could enter mucus membranes in the mouth. While the risk of contracting HIV as a result of oral sex is [low](https://www.cdc.gov/hiv/basics/transmission.html), a person can still take steps to protect themselves if their partner is has HIV. To prevent transmission, doctors recommend monogamous sex with a partner who is taking antiretroviral therapy consistently. Antiretroviral therapy can reduce a person's viral levels so that HIV is untransmittable.

Another rare mode of transmission is deep, open-mouth kissing. A person cannot contract HIV from kissing someone on the cheeks or even on the lips. However, if kissing with an open mouth exposes them to sores or bleeding gums from a person with HIV, they could contract the virus. It is essential to note that HIV is not transmitted through the saliva but through blood in a person's mouth.

**Myth 7: A person cannot contract HIV from an old needle**

**Fact**: HIV can survive in a needle for up to [42 days](https://www.hiv.gov/hiv-basics/overview/about-hiv-and-aids/how-is-hiv-transmitted). There is no safe way to share needles.

A person should use new a needle each time they inject themselves with prescription or recreational drugs. They should also ensure that a tattooist uses fresh needles before getting a tattoo.

**Myth 8: HIV is a death sentence.**

“With proper treatment, we now expect people with HIV to live a normal life span,” says Dr. Michael Horberg, national director of HIV/AIDS for [Kaiser Permanente](https://researchbank.kaiserpermanente.org/staff/michael-horberg-md-mas-facp-fidsa/).

“Since 1996, with the advent of highly active, antiretroviral therapy, a person with HIV with good access to antiretroviral therapy (ART) can expect to live a normal life span, so long as they take their prescribed medications,” adds Dr. Amesh A. Adalja, a board-certified infectious disease physician, and senior scholar at the [Johns Hopkins Center for Health Security](http://www.centerforhealthsecurity.org/our-staff/profiles/adalja/). He also serves on the City of Pittsburgh’s HIV Commission and on the advisory group of [AIDS Free Pittsburgh.](http://www.aidsfreepittsburgh.org/index.php)

**Myth 9: You can tell if someone has HIV/AIDS by looking at them.**

If an individual contracts the HIV virus, the symptoms are largely unremarkable. A person with an HIV infection might display symptoms that are similar to any other type of infection, such as a fever, fatigue, or general malaise. Additionally, the initial mild symptoms generally only last a few weeks. With the early introduction of antiretroviral medications, the HIV virus can be effectively managed. A person with HIV who receives antiretroviral treatment is relatively healthy and is no different than other individuals who have chronic health conditions. The stereotypical symptoms that people often associate with HIV are actually symptoms of complications that can arise from AIDS-related illnesses or complications. However, with adequate antiretroviral treatment and medications, those symptoms will not be present in an individual living with HIV.

**Myth 10: Straight people don’t have to worry about HIV infection.**

It’s true that HIV is more prevalent in men who also have male sexual partners. Gay and bisexual young African-Americans have the highest rates of HIV transmission.

“We know that the highest risk group is men who have sex with men,” says Dr. Horberg. This group accounts for about [70 percent of new HIV cases Trusted Source](https://www.cdc.gov/hiv/group/msm/index.html) in the USA, according to the CDC. However, heterosexuals accounted for [24 percent of new HIV infections in 2016,](https://www.hiv.gov/hiv-basics/overview/data-and-trends/statistics) and about two-thirds of those were women.

While the rates of African-American gay and bisexual men living with HIV has remained relatively the same in the United States, overall rates of new HIV cases have decreased since 2008 [by 18 percent](https://www.hiv.gov/hiv-basics/overview/data-and-trends/statistics). Diagnoses among heterosexual individuals in general decreased by 36 percent, and decreased among all women by 16 percent.

African-Americans face a higher risk of HIV transmission than any other race, no matter their sexual orientation. [According to the CDC Trusted Source](https://www.cdc.gov/nchhstp/newsroom/docs/factsheets/cdc-hiv-aa-508.pdf), the rate of HIV diagnoses for black men is almost eight times higher than white men and even higher for black women; the rate is 16 times higher in black women than white women, and 5 times higher than Hispanic women. African-American women contract HIV at [higher rates Trusted Source](https://www.cdc.gov/hiv/group/gender/women/index.html) than any other race or ethnicity. As of 2015, 59% of women living with HIV in the United States were African-American, while 19% were Hispanic/Latina, and 17% were white.

**Myth 11: HIV-positive people can’t safely have children.**

The most important thing that a woman living with HIV can do when preparing for pregnancy is to work with her healthcare provider to begin ART treatment as soon as possible. Because treatment for HIV has advanced so much, if a woman takes her HIV medicine daily as recommended by a healthcare provider throughout her entire pregnancy (including labor and delivery), and continues medicine for her baby for 4 to 6 weeks after birth, the risk of transmitting HIV to the baby can be as [low as 1% or less Trusted Source](https://www.cdc.gov/hiv/group/gender/pregnantwomen/index.html).

There are also ways for a mother who has HIV to lower the risk of transmission in the event that the HIV viral load is higher than desired, such as choosing a C-section or bottle feeding with formula after birth.

Women who are HIV negative but are looking to conceive with a male partner who carries the HIV virus may also be able to take special medication to help lower the risk of transmission to both them and their babies. For males who have HIV and are taking their ART medication, the risk of transmission is virtually zero if the viral load is undetectable.

**Myth 12: HIV always leads to AIDS**.

HIV is the infection that causes AIDS. But this doesn’t mean all HIV-positive individuals will develop AIDS. AIDS is a syndrome of immune system deficiency that is the result of HIV attacking the immune system over time and is associated with weakened immune response and opportunistic infections. AIDS is prevented by early treatment of HIV infection.

“With current therapies, levels of HIV infection can be controlled and kept low, maintaining a healthy immune system for a long time and therefore preventing opportunistic infections and a diagnosis of AIDS,” explains Dr. Richard Jimenez, professor of public health at [Walden University.](https://www.waldenu.edu/connect/newsroom/faculty-experts/richard-jiminez)

**Myth 13: With all of the modern treatments, HIV is no big deal.**

Although there have been a lot of medical advancements in the treatment of HIV, the virus can still lead to complications, and the risk of death is still significant for certain groups of people. The risk of acquiring HIV and how it affects a person varies based on age, gender, sexuality, lifestyle, and treatment. The CDC has a [Risk Reduction Tool](https://wwwn.cdc.gov/hivrisk/) that can help a person estimate their individual risk and take steps to protect themselves.

**Myth 14: If I take PrEP, I don’t need to use a condom.**

[PrEP](https://www.healthline.com/health/hiv-aids/hiv-prevention/prep-letter) (pre-exposure prophylaxis) is a medication that can prevent HIV infection in advance, if taken daily. According to Dr. Horberg, a recent study from [Kaiser Permanente](http://share.kaiserpermanente.org/article/large-study-of-prep-use-in-clinical-practice-shows-no-new-hiv-infections/) followed people using PrEP for two and a half years, and found that it was mostly effective at preventing HIV infections, again if taken daily.

However, it doesn’t protect against other sexually transmitted diseases or infections.

“PrEP is recommended to be used in combination with safer sex practices, as our study also showed that half of the patients participating were diagnosed with a sexually transmitted infection after 12 months,” says Dr. Horberg.

**Myth 15: Those who test negative for HIV can have unprotected sex.**

If a person was recently diagnosed with HIV, it may not show up on an HIV test until up to three months later.

“Traditionally used antibody-only tests work by detecting the presence of antibodies in the body that develop when HIV infects the body,” explains Dr. Gerald Schochetman, senior director of infectious diseases with Abbott Diagnostics. Depending on the test, HIV positivity could be detected after a few weeks, or up to three months after possible exposure. Ask the person performing the test about this window period and the timing of repeat testing. Individuals should take a second HIV test three months after their first, to confirm a negative reading. If they’re having regular sex, the [San Francisco AIDS Foundation](http://sfaf.org/hiv-info/basics/how-long-after-a-possible-exposure-should-i-be-tested-for-hiv.html?referrer=https://www.google.com/) suggests getting tested every three months. It’s important for an individual to discuss their sexual history with their partner, and to talk with a healthcare provider about whether they and their partner are good candidates for PrEP. Other tests, known as HIV combo tests, can detect the virus earlier.

**QUESTION THREE**

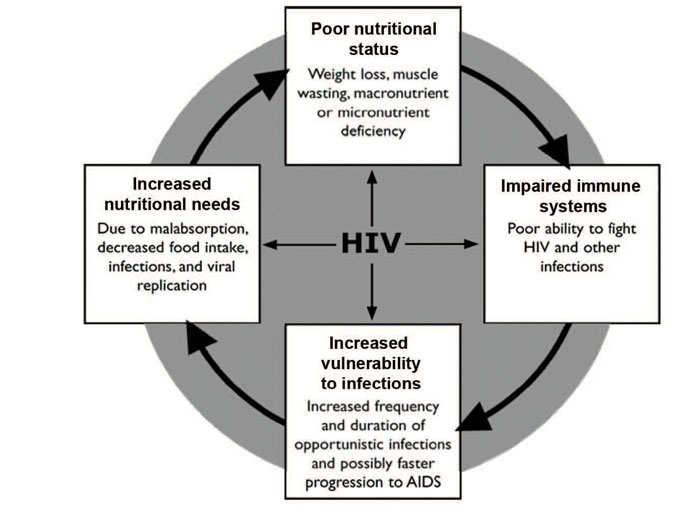
**Describe the relationship between HIV/AIDS and nutrition**

**Before we describe the relationship between HIV/AIDS and Nutrition, We must first have to know what each of them means. Nutrition** is defined as the processes by which an animal or plant takes in and utilizes **food substances. Essential nutrients** include protein, carbohydrate, fat, vitamins, minerals and electrolytes. All of us eat food. Food provides nourishment to the body and enables it to stay fit and healthy. The food that we eat undergoes many processes, like, first the food is digested, then it is absorbed into blood and transported to various parts of the body where it is utilized. The waste products and undigested food are excreted from the body.

HIV stands for Human Immunodeficiency Virus, a pathogen that works by attacking the human immune system. It belongs to a class of viruses called retroviruses and more specifically, a subgroup called lentiviruses, or viruses that cause disease slowly (**Arbeitskreis Blut. 2016)**. HIV is a virus, and AIDS is the condition the virus may cause

HIV infection progressively destroys the immune system, leading to recurrent opportunist infections (OIs), debilitation and death. OIs are infections that take advantage of a weak immune system. Poor nutritional status is one of the major complications of HIV and a significant factor that might lead people to develop full-blown AIDS. In places where there are inadequate food supplies (resource-limited settings), many people who become infected with HIV may already be undernourished. Their weakened immune systems further increase their vulnerability to infection. In this section you are going to look at the damaging cycle that can lead to a person with HIV and under-nutrition developing a variety of health problems including weakness, weight loss and loss of muscle tissue and fat. This cycle is represented in Figure below, Vitamin and mineral deficiencies may occur at a time when a person actually has increased nutritional needs because of infections, viral replication and poor nutrient absorption. The whole body develops reduced immune functioning and increased susceptibility to opportunistic infections.

Still from the same figure below, it can be noticed that the relationship between HIV and nutrition is multidirectional. HIV can cause or worsen undernutrition by making the person feel poorly and want to reduce their food intake at the same time as their body has increased energy requirements in an attempt to fight the infection. The disease itself may make the absorption of energy and other nutrients less efficient. Undernutrition in turn further weakens the immune system, increasing the risk of infection and worsening the disease’s impact.



Source: Federal Ministry of Health. (2008). *Ethiopian Guide to Clinical Nutrition Care for Children and Adults with HIV*)

**QUESTION FOUR**

**Describe the dietary advice you would give to a mother on the following**

**a). Nutrition**

**Nutrition** is the result of interrelated causes in the area of food, health and care in the society (Swart et al., 2008). **Nutrition** is defined as the processes by which an animal or plant takes in and utilizes **food substances**. **Essential nutrients** include protein, carbohydrate, fat, vitamins, minerals and electrolytes. It can also be defined as the [science](https://en.wikipedia.org/wiki/Science) that interprets the interaction of [nutrients](https://en.wikipedia.org/wiki/Nutrients) and other substances in [food](https://en.wikipedia.org/wiki/Food) in relation to maintenance, growth, reproduction, [health](https://en.wikipedia.org/wiki/Health) and disease of an organism. It includes food intake, [absorption](https://en.wikipedia.org/wiki/Absorption_(biology)), [assimilation](https://en.wikipedia.org/wiki/Assimilation_(biology)), [biosynthesis](https://en.wikipedia.org/wiki/Biosynthesis), [catabolism](https://en.wikipedia.org/wiki/Catabolism) and [excretion](https://en.wikipedia.org/wiki/Excretion)

Nutritionists recommend that everyone consume a balanced diet, including:

* A variety of vegetables from all of the subgroups—dark green, red and orange, legumes (beans and peas), starchy, and other
* Fruits, especially whole fruits
* Grains, at least half of which are whole
* Fat-free or low-fat dairy, including milk, yogurt, cheese, and or fortified soy beverages
* A variety of protein foods, including seafood, lean meats and poultry, eggs, legumes (beans and peas) and nuts, seeds, and soy products
* Oils

In addition to this general dietary advice, there are three key dietary tips for Moms-to-Be to follow for their developing baby’s health. These three tips matter even before you become pregnant, since some nutrients or unwanted elements may accumulate before you are pregnant or realize you are pregnant.

**Dietary Tip #1: Folic Acid**

Folic acid is a B vitamin and essential nutrient that helps prevent birth defects, such as neural tube defects, when taken beforeandduring pregnancy. The neural tube begins developing into an unborn baby’s spinal cord and brain during the first month of pregnancy, when a woman might not even know she is pregnant. Moms-to-Be can get adequate folic acid by eating the following foods:

* Leafy, dark green vegetables
* Legumes (dried beans and peas)
* Citrus fruits and juices
* Most berries
* Whole grains
* Breakfast cereals
* Fortified corn masa

Women who are or who may become pregnant should consume 400 to 800 micrograms of folic acid daily.

**Dietary Tip #2: Advice about Eating Fish**

Fish and other protein-rich foods have nutrients that can help a child’s growth and development. Due to the evidence of benefits from eating fish, women who are pregnant or breastfeeding should consume at least 8 and up to 12 ounces per week of a variety of fish, from choices that are lower in methylmercury. In January 2017, FDA and EPA issued final advice regarding fish consumption based on levels of methylmercury in fish**.  This advice is specifically for women who are pregnant, might become pregnant, or are breastfeeding…and for young children.**

Mercury is an element that occurs naturally in the environment and is also released to the environment through many types of human activity. It can collect in streams, lakes, and oceans and is turned into methylmercury in the water or sediment. It is this type of mercury that is present in fish. Methylmercury can be harmful to the developing brain and nervous system. The highest methylmercury levels are found in large, long-lived fish, such as king mackerel, marlin, orange roughy, shark, swordfish, tilefish (from the Gulf of Mexico), and bigeye tuna.  So, Moms-to-Be should avoid these seven fish.

**Goal:** Moms-to-Be should eat 2 to 3 servings of a variety of fish each week from the “Best Choices” list below or 1 serving a week from the “Good Choices” list below. If you eat fish caught by family or friends, check for fish advisories. If there is no advisory, eat only 1 serving and no other fish that week.

**Dietary Tip #3: Grains**

Moms-to-Be should consume a variety of foods, including varied grains (including wheat, oats, and barley), for good nutrition. Rice, which is a major global food source, is also a leading dietary source of a naturally-occurring form of arsenic that may have developmental effects on infants and lead to adverse pregnancy outcomes. By varying their grains, Moms-to-Be can promote better health for their babies.

**b). Pregnancy**

Healthy eating is important during pregnancy. Good nutrition is needed to meet the added demands on your body as well as those of your growing baby. Eating healthy while you’re pregnant may take a little extra effort, but it will have major benefits for you and your baby. Nutritional Needs during Pregnancy Is that the body goes through numerous physical and hormonal changes. The way you nourish your body during this time will affect your health and your baby’s. As a pregnant woman you must eat a healthful, balanced diet to help ensure you stay healthy throughout your pregnancy. The food you eat is your baby’s main source of nourishment, so it’s critical to consume foods that are rich in nutrients. Proper nutrition can help promote your baby's growth and development. By following some fairly easy nutrition guidelines, you can be on your way to a healthy pregnancy. Your body has increased nutritional needs during pregnancy. Although the old adage of "eating for two" isn't entirely correct, you do require more micronutrients and macronutrients to support you and your baby. Micronutrients are dietary components, such as vitamins and minerals that are only required in small amounts. Macronutrients are nutrients that provide calories, or energy. These include carbohydrates, proteins, and fats.

You need to consume more of each type of nutrient during pregnancy.  Most pregnant women can meet these increased nutritional needs by choosing a diet that includes a variety of healthy foods. A simple way to ensure you’re getting all the necessary nutrients is to eat different foods from each of the food groups every day. In fact, all meals should include at least three different food groups. Each food group has something to offer your body. For example: Grains are a good source of energy. Fruits and vegetables are packed with antioxidants, fiber, and water-soluble and fat-soluble vitamins. Meats, nuts, and legumes provide your body with protein, folate, and iron. Dairy products are great source of calcium and vitamin D.

Your body can’t function properly if it’s missing the nutrients from any of these food groups. Remember that your goal is to eat a wide variety of foods during pregnancy. Whenever possible, choose natural, low-fat foods over processed junk foods. Chips and soda, for example, contain no nutritional value. You and your baby will benefit more from fresh fruits, vegetables, and lean proteins, such as chicken, fish, beans, or lentils. This doesn’t necessarily mean that you need to avoid all of your favorite foods during pregnancy. However, you must balance them with nutritious foods so that you don't miss any important vitamins or minerals. Including the following nutrients in your daily diet will help ensure that you satisfy your body’s nutritional needs during pregnancy.

**Protein.** Protein is critical for ensuring the proper growth of fetal tissue, including the brain. It also helps with breast and uterine tissue growth during pregnancy. It even plays a role in your increasing blood supply, allowing more blood to be sent to your baby. You should eat three servings of protein per day. Good sources include: Lean beef and pork, beans, chicken, salmon, nuts, peanut butter, cottage cheese

**Calcium.** Calcium helps build your baby’s bones and regulates your body’s use of fluids. Pregnant women need at least three servings of calcium per day. In pregnant teens, the recommendation is five servings. Good sources of calcium include: Milk, yogurt, cheese, cabbage, tofu, eggs, and pudding

**Folate.** Folate, also known as folic acid, plays an important part in reducing the risk of neural tube defects. These are major birth defects that affect the baby’s brain and spinal cord, such as [spina bifida](http://americanpregnancy.org/birth-defects/spina-bifida/) and anencephaly. When you’re pregnant, you need 600 to 800 micrograms of folate. You can get folate from these foods: liver, nuts, dried beans and lentils, eggs, nuts and peanut butter, dark green leafy vegetables

**Iron.** Iron works with sodium, potassium, and water to increase blood flow. This helps ensure that enough oxygen is supplied to both you and your baby. You should be getting 27 milligrams of iron per day. Good sources of this nutrient include:, dark, green, leafy vegetables, citrus fruits, enriched breads or cereals, lean beef and, poultry, eggs, dried fruits

**Carbohydrates.** All carbohydrates are broken down into glucose, the body’s main fuel that powers all of its activities. There are two types of carbohydrates: simple carbohydrates and complex carbohydrates. Simple carbohydrates provide a quick energy boost because they are digested and absorbed rapidly. They are found in naturally sweet foods like fruits and also can be added to foods in the form of table sugar, honey, and maple syrup. Simple carbohydrates often are high in calories. It is best to limit your intake of simple carbohydrates to those found naturally in food. Stay away from sugary drinks and foods with added sugar.

Complex carbohydrates include dietary fiber and starches. It takes your body longer to process them, so complex carbohydrates provide longer lasting energy than simple carbohydrates. Complex carbohydrates are found in bread, rice, pasta, some fruits, and starchy vegetables such as potatoes and corn.

Fiber is found in plant foods. It is the part of the plant that your body cannot digest. Fiber passes relatively unchanged through your digestive system. It can help prevent constipation by adding bulk to the stool, making it easier to pass. You should eat about 25 grams of fiber daily. The following foods are good sources of fiber:

* Fruits (especially dried fruits, berries, oranges, apples, and peaches with the skin).
* Vegetables (such as dried beans, peas, and leafy vegetables like spinach and kale).
* Whole-grain products (such as whole-wheat bread or brown rice).

Fiber also helps maintain a stable blood glucose level because it passes slowly through the digestive tract. Foods that do this are described as “low glycemic” because they do not cause the blood glucose level to spike. Eating low glycemic foods can help you feel full and reduce the feeling of hunger. Low glycemic foods also may help reduce cholesterol levels and prevent diabetes

**Fats.** The body needs a certain amount of fat to function normally. Some types of fats, called omega-3 fatty acids, play an important role in brain development. Fats also are essential to the function of the immune system, aid in blood clotting, and help your body use vitamins A, D, E, and K. The fat in the foods you eat is digested and sent to the liver. The liver then assembles the fat into lipoproteins. Lipoproteins are made of cholesterol, fats, and protein. Lipoproteins carry fat through your bloodstream for use by or storage in other parts of the body. There are different types of fat found in foods. You should be aware of these different types of fat in your diet:

* Saturated fats come mainly from meat and dairy products. They tend to be solid when chilled. Examples include butter and lard. There also are two plant-based saturated fats: 1) palm oil and 2) coconut oil.
* Unsaturated fats tend to be liquid and come mostly from plants and vegetables. Olive, canola, peanut, sunflower, and fish oils are all unsaturated fats.
* Trans fats are unsaturated fats that have been chemically processed to be solid at room temperature. This is done to make foods last longer and give them better flavor. Vegetable shortenings, margarines, crackers, cookies, and snack foods like potato chips often contain trans fats.

Oils and fats give you important nutrients. During pregnancy, the fats you eat provide energy and help build many fetal organs and the placenta. However, too much saturated fat and trans fat can lead to health problems, including heart disease. Fats should make up about 20–35% of your total food intake—that’s about 6 tablespoons per day. Most of the fats and oils in your diet should be unsaturated fats, such as olive oil and peanut oil. Limit saturated fats, such as butter and fatty red meats, and avoid trans fats, which have no nutritional value.

**c) Breastfeeding**

According to American Academy of Pediatrics Section on Breastfeeding. (2012). Breastfeeding, also known as nursing, is the feeding of [babies](https://en.wikipedia.org/wiki/Babies) and young [children](https://en.wikipedia.org/wiki/Child) with [milk](https://en.wikipedia.org/wiki/Breast_milk) from a woman's [breast](https://en.wikipedia.org/wiki/Breast). Health professionals recommend that breastfeeding begin within the first hour of a baby's life and continue as often and as much as the baby wants. Breastfeeding women don’t need to eat a special diet, but should eat a healthy, balance of foods. Healthy dietary patterns include plenty of fruit and vegetables, wholegrains (like wholegrain breakfast cereals, whole wheat pasta and whole meal bread), good quality protein such as beans and pulses, lean meat, oily fish, eggs, nuts and seeds, some dairy or calcium-fortified dairy alternatives (choosing lower fat/lower sugars varieties) and small amounts of unsaturated oils such as rapeseed or olive oil and spreads

Eligible families should be signposted to the Healthy Start scheme, to get vouchers to spend on milk, fresh and frozen fruit and vegetables, as well as free vitamins Foods high in fat, sugars and salt like chocolate, cakes, biscuits and sugary soft drinks are not needed in the diet, so should be consumed less often and in smaller amounts.

Hydration is also an important consideration for breastfeeding – the European Food Safety Authority (EFSA) recommend around 10-12 glasses a day in total – water or plain lower fat milks are good choices (Parma, EFSA. 2010). Mothers may find it useful to keep a glass of water by their side when they are breastfeeding.

Historically and according to Scientific Advisory Committee on Nutrition 2011), energy estimations for exclusive breastfeeding have been calculated at 500 extra calories a day, although more recently it has since been suggested that around 330 calories a day is more likely. If women don’t feel hungrier and are eating well there is no need for them to eat more – the additional energy requirement may help them return to their pre-pregnancy weight. Nutritious snacks such as plain yogurt topped with fruit and seeds, small sandwiches or fruit can be advised if women do feel hungrier during the lactation period.

Although requirements for some nutrients may increase during breastfeeding, almost all vitamins and minerals can be obtained from eating a varied and balanced diet, apart from vitamin D.

If all babies are to be healthy and grow well, they must be fed breastmilk. When a baby sucks at the nipple, this causes the milk to come into the breast and continue to flow. Breastmilk is food produced by the mother’s body especially for the baby, and it contains all the nutrients (nourishment) a healthy baby needs.

A lactating woman needs at least two extra meals (550 Kcal) of whatever is available at home. In addition a dose of vitamin A (200,000IU) should be given once between delivery and six weeks after delivery. This will enable the baby to get an adequate supply of vitamin A for the first six months. During the first six months the best way of feeding the baby is for the mother to breastfeed exclusively. In addition to extra meals and one high dose of vitamin A, a breastfeeding woman also needs:

* Iodised salt in her diet
* At least one litre of water per day
* Vitamin A rich foods (such as papaya, mango, tomato, carrot and green leafy vegetables) and animal foods (such as fish and liver).

There is no specific national intake data for breastfeeding women but nutrition surveys report that women of childbearing age for example, on average, have higher intake of protein, and a significant proportion have lower intakes of calcium and iron, than recommendations.

**QUESTION FIVE**

**Explain the challenges a HIV positive mother may encounter in feeding her infant.**

Optimal breastfeeding is essential for child survival and development because breast milk has all the necessary nutrients for healthy growth and provides significant protection from childhood diseases (WHO. 2014). According to World Health Organization (WHO) recommendations for new born health; all babies should exclusively breast-feed from birth up to 6 months of age and their mothers counseled and given support for exclusive breastfeeding at each postnatal visit (Prell C & Koletzko B. 2016). The child should be introduced to complementary foods at six months while continuing breastfeeding for up to 12 months if adequate complementary foods which are nutritious and safe can be sustained (Prell C & Koletzko B. 2016). Such well-meaning guidelines when viewed in the framework of Prevention of Mother To Child Transmission (PMTCT) of HIV is great challenges to the Breastfeeding mother who is HIV positive (Ladner J, Besson M-H, Rodrigues M, Saba J, Audureau E. and Amankwa B, Asiedu C. 2015)

In 2006, WHO recommended that mothers with HIV choose between 1) exclusive breastfeeding for 6 months or 2) exclusive replacement feeding for 6 months if acceptable, feasible, affordable, sustainable and safe (AFASS) (World Health Organization, & UNICEF. 2007). Mothers who chose EBF were advised to continue breastfeeding until they could provide a safe and adequate replacement diet. By 2010 data on the impact of antiretroviral drugs (ARVs) on reducing the risk of mother-to-child transmission of HIV and increased all-cause mortality among infants who were not exclusively breastfed moved WHO to update its recommendations again: this time urging countries to endorse one nationwide infant feeding recommendation for women with HIV – either avoid all breastfeeding, or breastfeed while taking ARVs. In countries that adopted breastfeeding as the policy, women with HIV are encouraged to continue breastfeeding for at least 1 year and until a nutritionally adequate and safe diet without breast milk can be provided. Even where ARVs are not available, World Health Organization recommends breastfeeding of HIV-exposed infants (World Health Organization. 2010)

In many poor countries, the cultural attitude towards breastfeeding is that the breastfeeding period generally goes up to two years. This traditional way of feeding is so much rooted in local culture that any cessation of breastfeeding or any introduction of alternative feeding would be a source of concern at community and family levels. In addition, Replacement feeding can also be a source of stigma in places with high HIV prevalence, as it can single women out as potentially being HIV-positive in their community if they do not follow culturally accepted breastfeeding practices.

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development because breast milk has all the necessary

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**QUESTIION SIX**

**Explain the importance of periodic nutrition assessment in the nutritional management of HIV and AIDS.**

Nutritional assessment is the systematic process of collecting and interpreting information in order to make decisions about the nature and cause of nutrition related health issues that affect an individual (British Dietetic Association (BDA), 2012).Howevernutrition assessment according to encyclopedia.com, (2019), is defined as an in-depth evaluation of both objective and subjective data related to an individual's food and nutrient intake, lifestyle, and medical history. Once the data on an individual is collected and organized, the practitioner can assess and evaluate the nutritional status of that person. The assessment leads to a plan of care, or intervention, designed to help the individual either maintain the assessed status or attain a healthier status. Some of the importance of Nutrition assessment may mean and include but not limited to the following.

**Helps detect potential health and nutrition problems early**. In other words it helps to catch nutritional problems and infections early for quick action to prevent from them worsening. Nutrition assessment via anthropometric measurement can provide data for clinical staging and can identify patients at higher mortality risk whose health status may benefit from additional medical and/or nutrition interventions, such as counseling and therapeutic or supplementary feeding

**Provides information on the client’s current nutritional status.** Performing nutrition assessment also provides information on the nutritional status of  
PLHIV and creates a means for monitoring the number and proportion of undernourished  
individuals at the facility, regional, and national levels (Cogill, Bruce et al, 2003).

Nutrition assessment shows changes in weight if taken periodically. To measure changes in nutritional status to inform optimal approaches, motivate clients to continue practices, and understand program impacts.

Theimportance of periodic nutrition assessment in the nutritional management of HIV and AIDS is that it enables one to identify any risky behaviours or factors that might contribute to the development of ill health or poor nutritional status.

**Counselling and intervention**. Periodic nutrition assessment helps health care workers provide the correct counselling and interventions and also to inform/advice on medication and management of drug related side effects.

**Identification of clients with specific nutrition needs.** Nutrition Assessment also plays a role in identifying clients with specific nutrition needs such as nutritional care/support, dietary/nutrient supplements, medical treatment, and referral for further assessment. The assessment of a patient’s initial nutritional status and its evaluation during the disease and/or treatment plays an important role in tailoring nutritional support needed of the management of this Disease ([Wong .PW](https://www.ncbi.nlm.nih.gov/pubmed/?term=Wong%20PW%5BAuthor%5D&cauthor=true&cauthor_uid=11525056) et al, 2001)

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