

Assignment 5

PGD004 - Post Graduate Diploma in Human Nutrition

***By: Lagu Simon -Juba 30Th, December, 2018***

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

Working closely with doctors and adhering to the medication regimen are critical to delaying the progression of HIV to AIDS. It’s also important that to maintain a healthy lifestyle and practice safer sex. Can do to keep the viral load as low as possible, however the following are the reasons to explain why people living with HIV do not necessarily have aids;

* Improving and maintaining good nutrition may prolong health and delay the progression of HIV to AIDS. Because the impact of proper nutrition begins early in the course of HIV infection, even before other symptoms are observed, as a Health Extension Practitioner have an opportunity to make a real impact on the lives of people living with HIV (PLHIV).
* **Sparing the body from stress.** Stress can weaken the immune system and make more vulnerable to illness and infection. Stress can be combat by getting plenty of sleep each night and trying stress-relieving practices like meditation or yoga.
* **Getting vaccinated.** Infections like [pneumonia](https://www.everydayhealth.com/pneumonia/guide/) and the flu can be devastating if one is HIV positive. By Getting regular vaccinations for these and any other infections that the doctor recommends may lead delay the progression of HIV to Aids.
* **Practicing safer sex.** [Safer sex](https://www.everydayhealth.com/hiv-aids/sex-life-with-hiv.aspx) is always important, even if one have HIV. The goal should be not only to prevent the spread of the virus to others but to protect oneself from other sexually transmitted infections (STIs) like hepatitis, gonorrhea, and chlamydia. Marilyn Henderson, RN, the science department director at the Medical Institute for Sexual Health in Austin, Texas, adds that one should be sure to start treatment for any existing STI right away once diagnosed with HIV.
* **Taking care of the body.** That means quitting smoking, getting regular exercise, avoiding alcohol and recreational drugs, and sticking to a healthy diet. All of these lifestyle changes will help your body grow stronger and healthier.

**In conclusion**: Making a commitment to staying healthy can protect one against AIDS — even if one is already HIV positive.

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

Thirty years of civil war in the Sudan have resulted in the isolation of the southern provinces which border Central and East Africa. Consequently, little is known about the epidemiology of HIV-1 infection in this region. To estimate the prevalence of HIV infection in south Sudan and the risk factors associated with disease transmission, a seroepidemiologic survey was conducted in the township of Juba. Study subjects invited to participate in this study included medical outpatients, inpatients hospitalized for active tuberculosis, and female prostitutes. A total of 401 subjects participated in the study. HIV infection was confirmed in 25 subjects. The prevalence of HIV-1 infection was 19% (8/42) among tuberculosis patients, 16% (8/50) among prostitutes, and 3% (9/309) among outpatients. A significantly higher prevalence of HIV-1 infection was found among female prostitutes when compared to female outpatients

The truth is there are a lot of lingering myths and misconceptions about HIV, which are not only putting people at risk for infection but preventing tens of thousands from getting the care and treatment they may desperately need in my community

The following are the myths;

* **Myth 1. I Have Nothing to Worry about something that does not kill me in a day like a gun.**

Most of my community members does not fear HIV since it is a silent killer but they fear death from gun, this statements are very common among the soldiers and that is why cases of rape are common in South Sudan, the rapist do not care even if the victim is HIV positive.

* **Myth 2.** [**I Am Going to Die Early If I Get HIV**](https://www.verywellhealth.com/how-long-can-i-live-after-getting-hiv-48889) so I must enjoy every aspect of life either in the Hotels, Disco Places and Lodges.
* **Myth 3. I Don't Need an HIV Test,** This seem perfectly fair to most of the community members. They think that because they are not gay, don't inject drugs, don't sleep around, and make a point of using a condom every time, one is at no risk of HIV. But culturally they put marks, removal of teeth and polygamy in our community is very common.
* **Myth 4.** [**I Can Wait to Start Treatment until I Really Need It**](https://www.verywellhealth.com/why-treating-hiv-on-diagnosis-is-officially-a-must-49315) **,** Even if it is not true. The fact is that by delaying HIV therapy, one not only increase the risk of getting an HIV-related infection, one is twice likely to get certain cancers, cardiovascular diseases and other non-HIV-related diseases later in life (and often 10-15 years earlier than in non-infected people). Public health guidelines today recommend treatment on diagnosis.
* **Myth 5.** [**I Have Nothing to Worry About If I Take My HIV Medications Every Day**](https://www.verywellhealth.com/bad-hiv-therapy-erasing-habits-49213)

There is some truth to that. If you are HIV-positive and take your medications every day as directed, you'll have every chance of living a normal lifespan. But there are number of spoilers which can take back up to 8, 12 and even 15 years of life, even among those who are fully adherent to therapy.

* **Myth 6.** [**It's Okay to Miss a Few Doses of My HIV Drugs**](https://www.verywellhealth.com/how-much-adherence-is-enough-adherence-49307), Let's just say that it's human to miss a few doses of the HIV drugs. It happens. But the sad fact is that nearly 40% of clients on HIV therapy are unable to achieve an undetectable viral load (the measure of treatment success.) The majority of these are due entirely to suboptimal drug adherence and nothing else. Sure, if one miss an occasional dose it won't be a problem. But there is a point where it can be.
* **Myth 7.** [**I Don't Have to Use a Condom If I Take the HIV Prevention Pill**](https://www.verywellhealth.com/finding-a-doctor-47971)

[HIV pre-exposure prophylaxis (PrEP)](https://www.verywellhealth.com/the-facts-about-hiv-pre-exposure-prophylaxis-prep-49132) is a strategy by which the use of a daily antiretroviral pill can reduce the risk of getting HIV by as much as 92%. That's good news, right? But the question is this: does PrEP works the same in all individuals and, more importantly, does it mean we can now throw out the condoms once and for all?

* **Myth** **8.** [**I Can Avoid Getting Infected If I Take PrEP** before Sex](https://www.verywellhealth.com/hiv-aids-living-with-4158423) because PREP act as a vaccine.
* **Myth 9.** [**I Can Stop Using Condoms If I Have an Undetectable Virus**](https://www.verywellhealth.com/hiv-and-oral-sex-48107)

This is more of a near-truth. The fact is that a person on HIV therapy who fully suppresses the virus to undetectable levels is less likely to transmit the virus. But that doesn't mean there aren't factors that can increase or decrease risk on an individual basis.

* **Myth 10.**[**We're on the Brink of Curing AIDS**](https://www.verywellhealth.com/when-will-we-have-an-aids-vaccine-48663) **with traditional herbs**

So much media attention has been placed on the latest HIV "breakthrough" that it's often hard to separate fact from hype. That's not to say that there is a lot of valuable research being conducted, and advances are being made every day. But to suggest that we are anywhere near the brink of a cure is, at best, overly optimistic.

* **Myth 11.** [**HIV Is Not as Big of a Problem as It Used to Be**](https://www.verywellhealth.com/hiv-around-the-world-south-africa-48673)

There have been enormous successes in the global fight against HIV, with reversals in the number of HIV-associated deaths and illnesses in many countries as a result of expanded antiretroviral treatment. Even officials from the U.N. now suggest that the [epidemic as we know it could be over by 2030](https://www.verywellhealth.com/united-nations-90-90-90-strategy-aims-to-end-hiv-epidemic-4105202) with further investment from global and domestic funders.

* **Myth** **12.** HIV/AIDS exists and is spreading in Africa in a socioeconomic context created by western colonialism and, more recently, western trade and economic policies.
* **Myth** **13.** To stop the spread of HIV, people simply need to give up promiscuous sex and drug use.
* **Myth** **14.** Money for AIDS in developing countries goes into the pockets of corrupt officials.
* **Myth** **15.** The best way to control AIDS in the developing world is through prevention. Costly treatment should wait until prevention programs have been fully funded and deployed.
* **Myth** **16.** Since wealthy individuals have the chance to prolong and improve their lives with HAART, it contradicts the principles of equity and human rights to allow tens of millions of others to die without treatment.
* **Myth** **17.** AIDS treatment in the developing world is impossible because antiretroviral drugs are too expensive and because developing countries lack the sophisticated infrastructure necessary to deliver the drugs. In addition, mishandling of ARVs will lead to increased HIV drug resistance.
* **Myth** **18.** An HIV vaccine will soon be available, and this will solve the AIDS crisis.
* **Myth** **19**. The pharmaceutical industry’s drive for high profits, together with its political power, means that pricing policies will never change to benefit poor people with AIDS in the developing world.
* **Myth 20.** “There are no benefits in taking treatment for HIV. It will harm me more than the HIV infection”
* **Myth 21.** “I have sex, but am not at risk of contracting HIV.”
* **Myth 22.** “If I test positive for HIV it also means that I have AIDS”  
  After years of treatment, HIV/AIDS is not a health issue anymore and everything is under control

**In conclusion:** The spread of HIV is influenced by poverty and illiteracy, both of which are widespread in South Sudan. However the biggest myths are stigma of HIV, fear to be known as an HIV positive, Fear death, culturally HIV-Test were not considered, Having many wives is a portage. The movement of people displaced by harsh environmental conditions has contributed to an increase in the number of HIV/AIDS cases.

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

People living with HIV/AIDS (PLHIV), especially children have a degree of malnutrition and are at high risk of opportunistic infections and early death. Even mild and moderate malnutrition increases the risk of death.

Identifying and addressing malnutrition in people who have become HIV-infected can help them heal faster from infection, strengthen their immunity, and possibly slow the progression to AIDS.

**Nutrition and infection**

Poor nutrition increases the body’s vulnerability to infections, and infections in their turn make poor nutrition even worse. Inadequate dietary intake lowers immune system functioning and reduces the body’s ability to fight infections. Poor nutrition is therefore likely to increase the incidence, severity and length of infections. Symptoms that accompany infections such as loss of appetite, diarrhea and fever lead to further reduced food intake, poor nutrient absorption, nutrient loss and altered metabolism. All of these contribute to weight loss and growth faltering, which in turn further weaken the immune system.

An adequate balanced diet, proper hygiene, food safety and nutritional management of symptoms are critical interventions to break the cycle of infection and malnutrition.

**HIV and nutrition**

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.

**Poor nutrition and HIV: a vicious cycle**

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.

**The effects of under-nutrition on HIV**

If a person living with HIV infection is under-nourished, they will have a weakened immune system that may lead to increased susceptibility to opportunistic infections. The person may also have a slow rate of healing from illnesses, possibly fast progression of the HIV disease state, and response to treatment may be poor.

**Breaking the cycle of HIV and undernutrition**

Improving and maintaining good nutrition may prolong health and delay the progression of HIV to AIDS. Because the impact of proper nutrition begins early in the course of HIV infection, even before other symptoms are observed, as a Health Extension Practitioner have an opportunity to make a real impact on the lives of people living with HIV (PLHIV).

**The effects of HIV on nutrition**

People living with HIV infection have a higher chance of developing undernutrition than those who are not infected. HIV affects the nutritional status of these people in different ways. The effects of HIV may occur at different times during the course of their illness.

The following are typical adverse effects of HIV infection which may affect the person’s nutritional status:

* Reducing food consumption because of appetite loss or anorexia
* Nausea
* Oral thrush
* Constipation
* Bloating or heartburn.

People with HIV also tend to have various oral conditions that can make it difficult for them to eat. Impact on nutritional status includes:

* Impaired nutrient absorption
* Increased energy needs because of fever
* Possible increase in the need for other nutrients because of symptoms such as anemia
* HIV-associated wasting
* Changing body composition.

**Nutritional care of HIV-positive pregnant and lactating women**

Most infants who are exclusively breastfed by HIV-positive mothers do not become infected with HIV.

A woman’s nutritional status during pregnancy influences the risk of maternal to child transmission of HIV (MTCT) as well as their pregnancy outcomes.

**Feeding babies and children born from women who are HIV-positive**

Appropriate feeding practices are essential for optimal growth, development and the survival of infants and children. Breastfeeding plays a key role in optimally supplying all the nutrients and energy needs of infants in the first six months of life. Understanding the relationship of breastfeeding and child survival is a key to successful counselling of HIV positive mothers on how to optimally feed their babies.

**Breastfeeding and HIV**

Breastfeeding accounts for 30–40% of mother to child transmission in populations where breastfeeding is practiced until the child is two years of age. However, replacement feeding, if not carried out properly, is associated with increased risk of morbidity and mortality at a young age. This is particularly the case in low-resource settings.

Exclusive breastfeeding during the first six months of life is associated with lower transmission of HIV and improved child survival compared to non-exclusive breastfeeding children in developing countries.

There are a number of common terms used to describe infant feeding practices.

AFASS components

**Acceptable**: The mother has no barrier in choosing a feeding option for cultural or social reasons, or for fear of stigma and discrimination

**Feasible**: The mother (or family) has adequate time, knowledge, skills, and other resources to prepare feeds and to feed her infant, and the support to cope with any family, community and social pressure

**Affordable**: The mother and family, with available community and/or health system support, can pay for the costs of the feeding option, including all ingredients, fuel and clean water, without compromising the family’s health and nutrition spending. The current estimate for formula (without including fuel, water, mother’s time, etc.) for a child on exclusive replacement feeding is about 1200 to 1500 Eth. Birr per month

**Sustainable**: The mother has access to the continuous and uninterrupted supply of all ingredients and commodities needed to implement the feeding option safely for as long as the infant needs it.

**Safe**: Replacement foods are correctly and hygienically prepared and stored in nutritionally adequate quantities; infants are fed with clean hands using clean cups.

**Counselling mothers who are HIV-positive**

One of the routes of HIV transmission from mother to child is through breastfeeding. Therefore it’s very important to counsel a mother who is HIV-positive on feeding options to her infant

If an HIV-positive mother comes to one for counselling on how to feed her infant, how will one counsel her? Exclusive breastfeeding? Exclusive replacement feeding? Or mixed feeding? You may have to help her choose between two ‘evils’. It’s a difficult choice. First, as you have learnt, breastmilk is very important for the survival of the child.

**Mixed feeding**

Studies have shown that mixed feeding carries both a risk of HIV transmission from mother to child and a high risk of malnutrition. Therefore one must counsel parents to avoid mixed feeding and continue either with exclusive breastfeeding or exclusive replacement feeding.

**Strategies to decrease transmission of HIV during breastfeeding**

Infants who are confirmed to be HIV-infected should continue to breastfeed according to recommendations for the general population.

**The Cycle of Malnutrition and HIV/AIDS**

Malnutrition is one of the major complications of HIV/AIDS infection and a significant factor in advancing the disease.

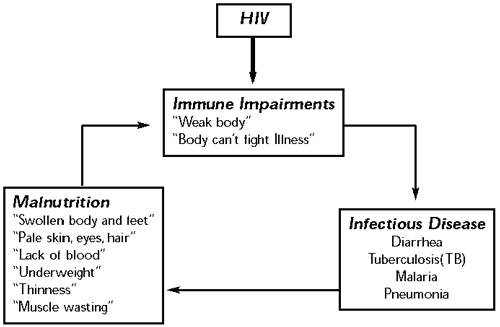
HIV infection can compromise nutrition through malabsorption and altered metabolism resulting in:

* Weight loss, Loss of muscles and fat tissue, Vitamin and mineral deficiencies, Reduced immune function and competence, Increased susceptibility to secondary infections and Increased nutritional needs because of reduced food intake

People living with HIV and AIDS may not get enough food because of:

* Drugs reducing their appetite, Infections causing sore-mouth, nausea and vomiting, Illnesses causing abdominal pain and damage of the gut, Persistent diarrhea, Reduced absorption of nutrients especially of fats and fat soluble vitamins, Increased tiredness, loneliness and depression leading to loss of appetite and anorexia, Reduced energy to work or produce food and Changes in their metabolism - the way the body transports, uses, stores and gets rid of nutrients

**Malnutrition is significantly high among HIV-infected people**.



Relationship between HIV and Malnutrition. Source – HIV/AIDS: A Guide for Nutrition Care and Support, 2001

Nutrition plays a key role in health and wellness for all individuals. Optimal nutrition – eating the right type and amount of food in the right combinations – is a critical component of comprehensive prevention, care and treatment for individuals with HIV and AIDS.

**Link between HIV and AIDS and Nutrition**   
The metabolism of a person living with HIV is altered In the asymptomatic phase an additional 10% of energy is required As a person moves into the symptomatic phases, the energy requirement goes up 20-30% more Children in symptomatic phases require % more energy than expected by age and weight  If nutritional needs are not met, the body is more susceptible to infections and may take longer to recover from minor illnesses This leads to a cycle of more weight loss, more vulnerability, and worsening illness

**HIV/AIDS and Nutrition in emergencies**  
Maternal and infant health and feeding Continuation of breastfeeding recommended ART reduce rate of transmission from mother-to-child during pregnancy from 40% to 10%, and also reduce the risk of transmission through breastfeeding HIV testing should then be offered to all mothers

**HIV/AIDS and Nutrition in emergencies**  
Food hygiene, sanitation, water, shelter These are critical in emergency: Food Hygiene: avoid contamination during cooking or storage Sanitation and water availability: latrine construction, control of stagnant water, promotion of hand washing, quality and quantity of water supplies, distance to water Shelter: safety and security of sites, integration of HIV prevention into shelter programmes

## ****Eating healthily**** nutritional advice for people living with HIV is the same as for people with a negative status: eat a [balanced diet](http://www.aidsmap.com/Healthy-eating/page/2029215/), without too much processed fat, sugar or salt.



1. **Describe the dietary advice you would give to a mother on the following**
2. **Nutrition**

Women have different daily nutritional requirements to men and, below, are the guidance and recipe ideas for women seeking a balanced diet for good health. But what exactly is meant by a 'balanced diet'?



The [Eatwell Guide](http://www.nhs.uk/Livewell/Goodfood/Pages/the-eatwell-guide.aspx) defines different types of foods we should be eating and in what proportions. These include some simple rules to follow like getting a minimum of five fruit and veg a day, including wholegrains and choosing more fish, poultry, beans and pulses, less red meat and opting for lower fat, lower sugar dairy foods. But that's not the whole story.

## Reference Intakes (RI)

Nutritional needs vary depending on sex, size, age and activity levels so **use this chart as a general guide only**. The chart shows the Reference Intakes (RI) or daily amounts recommended for an average, moderately active adult to achieve a healthy, balanced diet for maintaining rather than losing or gaining weight.

The RIs for fat, saturates, sugars and salt are all maximum amounts, while those for carbs and protein are figures one should aim to meet each day. There is no RI for fiber, although health experts suggest we have 30g a day.  

|  |  |  |
| --- | --- | --- |
| **Reference intakes (RI)** | | |
|  | Men | Women |
| Energy (kcal) | 2500 | 2000 |
| Protein (g) | 55 | 50 |
| Carbohydrates (g) | 300 | 260 |
| Sugar (g) | 120 | 90 |
| Fat (g) | 95 | 70 |
| Saturates (g) | 30 | 20 |
| Salt (g) | 6 | 6 |
|  |

## Perfect portions

Numbers and figures are all very well but how does this relate to one? Keeping the [Eatwell Guide](http://www.nhs.uk/Livewell/Goodfood/Pages/the-eatwell-guide.aspx) in mind, one can personalize portion sizes with our handy guide.

|  |  |
| --- | --- |
| **Foods** | **Portion size** |
| Carbs like cereal/rice/pasta/potato (include 1 portion at each main meal and ensure it fills no more than ¼ of your plate) | Your clenched fist |
| Protein like meat/poultry/fish/tofu/pulses (aim to have a portion at each meal) | Palm of your hand |
| Cheese (as a snack or part of a meal) | 2 of your thumbs |
| Nuts/seeds (as a snack or part of a meal) | 1 of your cupped hands |
| Butter/spreads/nut butter (no more than 2 or 3 times a day) | The tip of your thumb |
| Savouries like popcorn/crisps (as a snack/treat) | 2 of your cupped hands |
| Bakes like brownies/flapjacks (as an occasional treat) | 2 of your fingers |

Don’t forget, as set out in the [Eatwell Guide](http://www.nhs.uk/Livewell/Goodfood/Pages/the-eatwell-guide.aspx), we should all be aiming for a minimum of five portions of fruit and vegetables a day. Discover what counts as one portion using our [five-a-day infographic](https://www.bbcgoodfood.com/howto/guide/what-counts-five-day).

## Breakfast

Kick-start your metabolism by including protein at breakfast, choose from eggs, salmon, lean ham or dairy. We burn more calories digesting protein rather than carbs so, by making your breakfast a protein one, you'll be revving up your metabolism and because protein keeps you fuller for longer, you'll eat fewer calories the rest of the day.

## Mid-morning snack

Many people find eating little and often helps them manage their blood sugar levels. This doesn't mean they eat more but instead spread their day's intake evenly throughout the day.

**Energy-giving snacks:**  
[Almond butter](https://www.bbcgoodfood.com/recipes/2536655/almond-butter)  
[Bean, feta & herb dip](https://www.bbcgoodfood.com/recipes/2248656/bean-feta-and-herb-dip)  
[Spicy chickpeas](https://www.bbcgoodfood.com/recipes/1656636/spicy-chickpeas)

## Lunch

Make lunch a mix of lean protein and starchy carbs. Carb-rich foods supply energy and without them you're more likely to suffer that classic mid-afternoon slump.

**Protein and carb lunch recipes:**  
[Open chicken Caesar sandwich](https://www.bbcgoodfood.com/recipes/4715/open-chicken-caesar-sandwich)  
[Open cottage cheese & pepper sandwich](https://www.bbcgoodfood.com/recipes/2554636/open-cottage-cheese-and-pepper-sandwich)  
[Salmon & chive bagel topper](https://www.bbcgoodfood.com/recipes/2253638/salmon-and-chive-bagel-topper)  
[Veggie wholewheat pot noodle](https://www.bbcgoodfood.com/recipes/veggie-wholewheat-pot-noodle)  
[Smoked salmon, quinoa & dill lunch pot](https://www.bbcgoodfood.com/recipes/smoked-salmon-quinoa-dill-lunch-pot)  
[Spicy tuna quinoa salad](https://www.bbcgoodfood.com/recipes/2364643/spicy-tuna-quinoa-salad)

## Mid-afternoon

Satisfy that sweet craving and the need for energy with fruit. A handful of dried fruit combined with unsalted nuts or seeds provides protein and healthy fats to keep you satisfied till supper.

**Satisfying snacks:**  
[Date & walnut cinnamon bites](https://www.bbcgoodfood.com/recipes/date-walnut-cinnamon-bites)  
[Iced grapes with cheddar cubes & celery](https://www.bbcgoodfood.com/recipes/iced-grapes-cheddar-cubes-celery)  
[Almond, raisin & popcorn trail mix](https://www.bbcgoodfood.com/recipes/almond-raisin-popcorn-trail-mix)

## Dinner

Don't curfew carbs. They're low in fat, fibre-rich and help you relax in the evening. Combine them with some healthy essential fats, the ones you find in oily fish like salmon, mackerel and sardines as well as nuts, seeds and their oils.

1. **Pregnancy**

What a woman eats and drinks during pregnancy is her baby's main source of nourishment. So, experts recommend that a mother-to-be choose a variety of healthy foods and beverages to provide the important nutrients a baby needs for growth and development.

## The Key pregnancy nutrition

A pregnant woman needs more [calcium, folic acid, iron and protein](http://www.acog.org/patients/faqs/nutrition-during-pregnancy) than a woman who is not expecting, according to the American College of Obstetricians and Gynecologists (ACOG). Here is why these four nutrients are important.

* **Folic acid**, also known as folate when the nutrient is found in foods, is a B vitamin that is crucial in helping to prevent birth defects in the baby's brain and spinal cord, known as neural tube defects.

**Food sources:** leafy green vegetables, fortified or enriched cereals, breads and pastas, beans, citrus fruits.

* **Calcium** is a mineral used to build a baby's bones and teeth. If a pregnant woman does not consume enough calcium, the mineral will be drawn from the mother's stores in her bones and given to the baby to meet the [extra demands of pregnancy](http://www.eatright.org/public/content.aspx?id=6808), according to the Academy of Nutrition and Dietetics. Many dairy products are also fortified with vitamin D, another nutrient that works with calcium to develop a baby's bones and teeth.

**Food sources:** milk, yogurt, cheese, calcium-fortified juices and foods, sardines or salmon with bones, some leafy greens (kale, bok choy).

* **Iron**: Pregnant women need 27 milligrams of iron a day, which is double the amount needed by women who are not expecting, according to ACOG. Additional amounts of the mineral are needed to make more blood to supply the baby with oxygen. Getting too little iron during pregnancy can lead to anemia, a condition resulting in fatigue and an increased risk of infections.

To increase the absorption of iron, include a good source of vitamin C at the same meal when eating iron-rich foods, ACOG recommends. For example, have a glass of orange juice at breakfast with an iron-fortified cereal.

**Food sources:** meat, poultry, fish, dried beans and peas, iron-fortified cereal.

* **Protein**: More protein is needed during pregnancy, but most women don't have problems getting enough protein-rich foods in their diets, said Sarah Krieger, a registered dietitian and spokeswoman on prenatal nutrition for the Academy of Nutrition and Dietetics in St. Petersburg, Florida. She described protein as "a builder nutrient," because it helps to build important organs in the baby, such as the brain and heart.

**Food sources:** meat, poultry, fish, dried beans and peas, eggs, nuts, tofu.

## Foods to eat

During pregnancy, the goal is to be eating nutritious foods most of the time, to maximize prenatal nutrition, the emphasis is to the follow the five food groups: fruits, vegetables, lean protein, whole grains and dairy products.

**Fruits and vegetables**: Pregnant women should focus on fruits and vegetables, particularly during the second and third trimesters, Get between five and 10 tennis ball-size servings of produce every day, she said. These colorful foods are low in calories and filled with fiber, vitamins and minerals.

**Lean protein**: Pregnant women should include good protein sources at every meal to support the baby's growth, Protein-rich foods include meat, poultry, fish, eggs, beans, tofu, cheese, milk, nuts and seeds.

**Whole grains**: These foods are an important source of energy in the diet, and they also provide fiber, iron and B-vitamins. At least half of a pregnant woman's carbohydrate choices each day should come from whole grains, such as oatmeal, whole-wheat pasta or breads and brown rice,

**Dairy**: Aim for 3 to 4 servings of dairy foods a day, they should take, Dairy foods, such as milk, yogurt and cheese are good dietary sources of calcium, protein and vitamin D.

In addition to a healthy diet, pregnant women also need to take a daily prenatal vitamin to obtain some of the nutrients that are hard to get from foods alone, such as folic acid and iron, according to ACOG.

## Foods to limit

**Caffeine**: Consuming fewer than 200 mg of caffeine a day, which is the amount found in one 12-ounce cup of coffee, is generally considered safe during pregnancy, according to a [2010 ACOG committee opinion](http://www.acog.org/resources-and-publications/committee-opinions/committee-on-obstetric-practice/moderate-caffeine-consumption-during-pregnancy), which was reaffirmed in 2013. The committee report said moderate caffeine consumption during pregnancy does not appear to contribute to miscarriage or premature birth.

**Fish**: Fish is a good source of lean protein, and some fish, including salmon and sardines, also contain omega-3 fatty acids, a healthy fat that's good for the heart. It is safe for pregnant women to eat 8 to 12 ounces of cooked fish and seafood a week, according to ACOG. However, they should limit albacore or "white" tuna, which has high levels of mercury, to no more than 6 ounces a week, according to ACOG. Mercury is a metal that can be harmful to a baby's developing brain. Canned light tuna has less mercury than albacore "white" tuna and is safer to eat during pregnancy.

## Foods to avoid

**Alcohol**: Avoid alcohol during pregnancy, Alcohol in the mother's blood can pass directly to the baby through the umbilical cord. Heavy use of alcohol during pregnancy has been linked with fetal alcohol spectrum disorders, a group of conditions that can include physical problems, as well as learning and behavioral difficulties in babies and children, according to the Centers for Disease Control and Prevention (CDC).

**Fish with high levels of mercury**: Seafood such as swordfish, shark, king mackerel, marlin, orange roughy and tilefish are high in levels of methyl mercury, according to the Academy of Nutrition and Dietetics, and should be avoided during pregnancy. Methyl mercury is a toxic chemical that can pass through the placenta and can be harmful to an unborn baby's developing brain, kidneys and nervous system.

**Unpasteurized food**: According to the USDA, pregnant women are at high risk for getting sick from two different types of food poisoning: listeriosis, caused by the Listeria bacteria, and toxoplasmosis, an infection caused by a parasite.

The CDC says that Listeria infection may cause miscarriage, stillbirth, preterm labor, and illness or death in newborns. To avoid listeriosis, the USDA recommends avoiding the following foods during pregnancy:

* Unpasteurized (raw) milk and foods made from it, such as feta, Brie, Camembert, blue-veined cheeses, queso blanco and queso fresco. Pasteurization involves heating a product to a high temperature to kill harmful bacteria.
* Hot dogs, luncheon meats and cold cuts unless heated to steaming hot before eating to kill any bacteria.
* Store-bought deli salads, such as ham salad, chicken salad, tuna salad and seafood salad.
* Unpasteurized refrigerated meat spreads or pates.

**Raw meat**: A mother can pass a Toxoplasma infection on to her baby, which can cause problems such as blindness and mental disability later in life, reports the CDC. To prevent toxoplasmosis, the USDA recommends avoiding the following foods during pregnancy:

* Rare, raw or undercooked meats and poultry.
* Raw fish, such as sushi, sashimi, ceviches and carpaccio.
* Raw and undercooked shellfish, such as clams, mussels, oysters and scallops.

Some foods may increase a pregnant woman's risk for other types of food poisoning, including illness caused by salmonella and E. coli bacteria. Foodsafety.gov lists these foods to avoid during pregnancy, and why they pose a threat:

* Raw or undercooked eggs, such as soft-cooked, runny or poached eggs.
* Foods containing undercooked eggs, such as raw cookie dough or cake batter, tiramisu, chocolate mousse, homemade ice cream, homemade eggnog, Hollandaise sauce.
* Raw or undercooked sprouts, such as alfalfa, clover.
* Unpasteurized juice or cider.

The Institute of Medicine (IOM) guidelines for total weight gain during a full-term pregnancy recommend that:

* Underweight women, who have a Body Mass Index (BMI) below 18.5, should gain 28 to 40 lbs. (12.7 to 18 kilograms).
* Normal weight women, who have a BMI of 18.5 to 24.9, should gain 25 to 35 lbs. (11.3 to 15.8 kg).
* Overweight women, who have a BMI of 25.0 to 29.9, should gain 15 to 25 lbs. (6.8 to 11.3 kg).
* Obese women, who have a BMI of 30.0 and above, should gain 11 to 20 lbs. (5 to 9 kg).

**Rate of weight gain**

The IOM guidelines suggest that pregnant women gain between 1 and 4.5 lbs. (0.45 to 2 kg) total during their first trimester of pregnancy. The guidelines recommend that underweight and normal-weight women gain, on average, about 1 pound every week during their second and third trimesters of pregnancy, and that overweight and obese women gain about half a pound every week in their second and third trimesters of pregnancy.

**Twins**

The IOM guidelines for pregnancy weight gain when a woman is having twins are as follows:

* Underweight: 50 to 62 lbs. (22.6 kg to 28.1 kg).
* Normal weight: 37 to 54 lbs. (16.7 to 24.5 kg).
* Overweight: 31 to 50 lbs. (14 to 22.6 kg).
* Obese: 25 to 42 lbs. (11.3 to 19 kg).

1. **Breastfeeding**

World Breastfeeding Week is celebrated annually across 120 countries from 1-7th August. Promoted by global health organisations like WHO and UNICEF, the goal of this week is to spread awareness about the importance of exclusive [breastfeeding](https://food.ndtv.com/health/breastfeeding-has-lifesaving-benefits-unicef-1271412) for the first six months of an infant's life. This helps build the baby's [immune](https://food.ndtv.com/recipe-health-juice-349485) system, provides critical nutrients and promotes development.

The nine month long trial a mother undergoes finally bears [fruit](https://food.ndtv.com/recipe-dragon-fruit-and-yogurt-smoothie-181094) when her child is born. The mother promises it all the nutrition and care, both inside and outside the womb. Once the baby enters the world it's going to grow up in, it depends on its mother's [milk](https://food.ndtv.com/recipe-milk-cake-217975) for all the nourishment. Breastfeeding is the closest bond a [parent](https://food.ndtv.com/health/can-you-really-get-dementia-in-your-30s-or-40s-696026) shares with their offspring. While breastfeeding, a mother needs to have the right diet so that the milk the baby gets, is filled with all the right [nutrients](https://food.ndtv.com/recipe-kodo-millet-burger-847161).

Many new mothers struggle with breastfeeding. As momentous the occasion is, the arrival of a new born, it is also a difficult time for a mother. The following are the advice to mother’s breastfeeding;

1) The phase of lactation demands an additional 500kcal in the diet of a breastfeeding mother. Despite all the conflicting advice, breast feeding mothers are advised to consume a healthy diet with good proportions of proteins, vitamins, iron and [calcium](https://food.ndtv.com/recipe-ragi-cookies-367173). Women can continue the healthy eating policy that they were following in [pregnancy](https://food.ndtv.com/opinions/pregnancy-diet-should-you-really-eat-for-two-1248326).  
2) High protein content of foods such as whole [grains](https://food.ndtv.com/recipe-chipotle-and-toasted-walnut-wheat-berry-salad-294582), cereals, pulses, dried fruits, fresh fruits, vegetables, eggs and [chicken](https://food.ndtv.com/recipe-chicken-badaam-roll-567057) is good for the mother and baby.  
3) Aerated drinks and [alcohol](https://food.ndtv.com/recipe-love-live-and-laugh-836334) are not advised. Instead, switch to healthier options to stay hydrated such as fresh fruit juices, tender coconut, lassi and lime juice.  
4) Since there is no proven link to think that certain foods may cause colic for the baby, mothers are advised to eat what suits them and avoid foods that don't.

5) Traditionally, lactating women are given food laden with heavy portions of [ghee](https://food.ndtv.com/recipe-desi-ghee-822445). As there is no proof that this causes increase in breast milk production, a wise move would be to switch over to fresh fruits, milk, [yoghurt](https://food.ndtv.com/recipe-ragi-pancakes-with-sausage-filling-and-yoghurt-dip-732467) and juices instead.  
  
6) Also, women are advised to continue the supplements of [iron](https://food.ndtv.com/food-drinks/5-iron-rich-foods-for-a-stronger-you-good-health-1201734) and calcium in the postpartum period for up to 3 months.

7) [Water](https://food.ndtv.com/recipe-puy-lentil-green-onion-crumble-674991) isn't technically food. But it ensures a regular supply of milk. It is advised to drink atleast 8 glasses of water a day. Breastfeeding mothers are advised to keep a bottle of water nearby, even if they are not thirsty, as they it is difficult to get up once they start nursing.  
   
8) [Oatmeal](https://food.ndtv.com/recipe-oatmeal-and-almond-cookies-178023) is very much in fashion these days among office goers. It is light and provides the right nutrition. Lactating mothers are advised to have oats as a part of their diet as it helps reduce cholesterol and regulate blood pressure. It's also seen to increase the milk supply.

9) [Garlic](https://food.ndtv.com/recipe-garlic-chilli-prawns-99171) is a common thing found in the vegetable compartment of our fridge. Adding garlic to your food not only increases the deliciousness of your dish but also increases the milk supply.  
   
10) Breastfeeding mothers have the right opportunity to bring out the Bugs Bunny in you. [Carrots](https://food.ndtv.com/recipe-spicy-wisey-carrots-198602) contain beta-carotene, which is great for lactating mothers.

### **Other Tips**

**Limit caffeinated foods and beverages**, such as coffee, tea and some sodas. It is a good idea to limit their intake of highly caffeinated foods and drinks to 8 ounces a day.

**Avoid drinking alcohol and smoking cigarettes.** Do not use any street drugs. Also, it is important that they do not use any medications that are not approved by their health care provider, even those available over the counter.

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

Exclusive breastfeeding delayed menstruation after delivery, thus delaying the next pregnancy couples who are in need of babies might complain.

**Feelings of satisfaction**

Breast feeding makes mothers feel like they were real women because they were well accepted by society and family members. But if they are not allowed to do so they feel neglected. **Breastfeeding brings comfort to the baby**

Breastfeeding bring comfort to the baby. Breast feeding baby feels calm on the breast. But because after 6 months it has to be stopped so this comfort to the baby is lost.

**Social Support**

**Partner support** mothers feel great pleasure in getting support from their partners, especially the two who disclosed their HIV status.

**Support from family members**

Handling 6 months baby can be difficult with food, some mothers might get challenges in getting support from the family members in supporting or looking after the baby, in most cases the grand mothers are the one to take care of the baby

**Support from neighbors** obtained support from their neighbors whom they had disclosed their HIV status to. Sharing personal experiences during community gatherings and antenatal clinic visits motivated mothers to continue breastfeeding. However others might get challenge been associated to the neighbors regarding knowing their status.

**Role of health workers in promoting exclusive breastfeeding**

Participants reported that the continuous teaching and counseling offered by nurses during child-welfare clinic-visits motivated them to continue breastfeeding. However this services cannot adequately be provided due to huge numbers of clients coming for the visits some mothers might get it hard to have the teaching and counseling.

**Disclosure of HIV status to family members**

Fear of discrimination and loss of their marriage if they disclose their HIV status

**Pressure to mix-feed**

Breastfeeding women sometimes can be pressurized by their in laws, family members and some neighbors to mix-feed their babies.

**Breast milk not enough**

Some mothers might need to supplement breast milk with complementary feeds, since they sometimes felt that breast milk was not enough.

**Socio-economic factors**

Due to poverty, mothers often did not have enough food to eat hence they felt breast milk production was affected.

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

Elements to be considered in the nutrition assessment as with all planning exercises, the process of deciding on how best to address the food and nutritional needs of people living with HIV/AIDS (PLWHIV) and HIV-affected families and communities begins with a careful situation assessment. The goal of this assessment is to understand nutritional problems in the population as a whole and how those living with or affected by HIV/AIDS may be specifically impacted. It is important to understand the extent, nature and causes of nutritional problems.

**Anthropometric assessment.**

Important components of a nutrition assessment includes Weight, Height, MUAC, and Body Mass Index. Periodic monitoring of body weight is a standard part of patient monitoring in most HIV programmes. Additionally, programmes may consider collecting patient height or mid-upper arm circumference (MUAC) should be measured regularly for adults who are pregnant or lactating or cannot stand up to be measured.

Percentage of weight gain or loss is another measure of nutritional status in adults. Adults with HIV who lose 10 percent of their body weight over 1 month should seek medical and nutritional care

This helps to identify wasting and need for therapeutic care. Numerous studies have reported an association between low BMI and reduced survival in HIV-infected adults.

**Biochemical assessment.** Laboratory examinations for blood (hemoglobin [Hb], hematocrit), protein (serum albumin) and micronutrient (vitamin B12, iron, zinc and folate) and lipid (cholesterol and triglycerides) measurements help identify nutrient deficiencies. People on Zidovudine (AZT) should have their Hb

Checked every 3–6 months.

Anemia has been shown to be a strong predictor of mortality in HIV independent of immune status. Furthermore, some antiretroviral drugs affect red blood cell production and thus should not be used if patients are already suffering from anemia. Where laboratory capabilities exist, programmes may consider monitoring insulin resistance, cholesterol, and triglycerides in patients receiving HAART who are at risk of diabetes and cardiovascular disease

Blood samples are to be collected from fasting patients. Plasma cholesterol (total, HDL and LDL), triacylglycerol, total protein, apolipoproteins A-I and B, albumin, transthyretin, retinol binding protein, and ceruloplasmin concen-trations to determine.

Plasma levels of zinc, copper, and selenium can be determine in a hemolysis-free sample by ﬂame atomic absorption spectrometry.

Human immunodeﬁciency virus (HIV) infection is a major global health problem, and nutritional disorders are often pre-sent in HIV /AIDS patients. Early studies demonstrated weight loss and protein depletion, ﬁndings associated with body cell mass depletion in untreated patients. Poor nutritional status may be caused by different factors:

. Inadequate nutrient intake or absorption, metabolic alterations, hyper metabolism, or a combination of these;

. Alteration of the gastrointestinal tract;

. Drug-nutrient interactions.

Anorexia related to the psychological processes provoked by the pathology (mainly social isolation), biochemical changes, including an increase in the activity of the cytokines, a diverse drug intake, physical inactivity, and opportunistic diseases also lead to a decrease in food intake

Since the appearance of highly active antiretroviral therapy (HAART), a lower incidence of malnutrition, and an improve-Ment of the survival and immunological functions of infected patients has been observed. However, this highly effective antiretroviral therapy is associated with lipodystrophy, related, in turn, to insulin resistance and its metabolic complications, such as impaired glucose tolerance, diabetes, and hypertriglyceridemia

The importance of nutritional support, in addition to the antiretroviral therapy in HIV/AIDS patients, has been accepted. Nutritional support is needed to maintain optimum nourishment during the symptomatic period, in order to pre-vent further deterioration of the nutritional status during acute episodes of infection, and to improve the nutritional status during the stable symptom-free period

Nutrition assessment helps determine what nutrition interventions clients need, such as diet changes, food supplements, medical treatment and referral for further assessment.

Nutrition assessment measures changes in nutritional status to monitor progress.

Nutrition assessment of adults with HIV should include:

**Dietary assessment.** Information about the types and amounts of foods eaten, appetite, food habits and eating behaviors helps identify factors that affect food intake such as food availability, side effects of medications, traditional food taboos and economic factors.

**Medical history.** Information about other illnesses

(e.g., diabetes), psychological factors (e.g., depression and stress) and traditional therapies helps identify needed nutrition and dietary interventions, as well as harmful medication-food interactions.

**Assessment of the living environment and functional status.**

A clean environment is vital for people with HIV with compromised immune systems. At every contact, health care providers should assess the cleanliness of a client’s environment, the availability and use of safe and clean water, food hygiene and support from families, friends and support groups.

**Assessment of lifestyle practices.** Smoking, alcohol and drug abuse may affect food and nutrient intake and decrease the effectiveness of some medications.

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