

# **HIV/AIDS: Information for Massage Therapists**

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## NOTES and DISCLAIMERS

This course is intended to help expand the knowledge and skills of massage therapists and bodyworkers on the subject of HIV/Aids. The information in this course was obtained from various sources and through over 15 years experience as a Licensed Massage Therapist both in Florida and Pennsylvania. A list of references is included at the end of this course.

It is the responsibility of the massage therapist or bodyworker to apply this information appropriately within their practice.

The information contained in this course has been researched based on the references and listed at the end of this course and is generally accepted as factual at the time of publication. Body Balancing and Paula J Kaprocki, LMT claim no responsibility for any contradictory data that may be corrected or changed in any subsequent releases of this course.

We will use the words patient and client interchangeably as they will sometimes change based on your practice. Additionally, massage therapist, therapist and practitioner can be interchanged.

The test contained in the back of this course must be submitted in order to receive CE credits.

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## **Course Instructions**

### How to best proceed

Relax, take your time, and go at your own pace. Since 1 CEU is awarded after successfully completing this course, the reading of this manual and completion of the test questions should not take less than 1 hour. Only after you have successfully mastered all the material in the course should you proceed to the test questions.

Complete the test and mail your answer sheet.

Before beginning, please clearly write your name, address, zip code, and license number on your test answer card. Read each question carefully before answering. Please use a #2 pencil to fill-in your answers on the answer card by completely shading your choice. Keep in mind that each question has only one correct answer. The test consists of 15 questions. For a passing grade, you must correctly answer 12 questions.

We encourage your input and would welcome any suggestions to improve this course or the test questions. Please feel free to note your suggestions or comments on the course evaluation sheet.

### Information for CEU Requirements

In order to receive your 1 hour of continuing education credit, you must submit your correct Name, address and license information for the course. Please notify us of any address or name changes as we must keep records for submission of credits to CE Broker.

## **Mailing Instructions**

Please send your completed test answer sheet and course evaluation to:

Please send your completed test answer card and the course evaluation to:

The Body Mechanics

660 Andersontown Road

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Or email the pdf sheet to:

[tbm.massage@gmail.com](mailto:tbm.massage@gmail.com)

If you have any questions regarding this course, please contact Paula Kaprocki via email at [tbm.massage@gmail.com](mailto:tbm.massage@gmail.com) or call 717.818.7633

If you mail your answer sheet you will receive your certificate within 10 days of the receipt. If you email your answers you will receive a certificate that you can print for your records.

All CEUs will be submitted to CE Broker weekly.

## **HIV/AIDS: Information for Massage Therapists**

### **Learning Objectives:**

Upon completion of this class the student will be able to:

- Define and discuss HIV and AIDS
- Describe HIV/AIDS research
- Describe HIV/AIDS Modes of Transmission
- Describe HIV/AIDS Prevention
- Describe appropriate behavior and attitude toward individuals with the disease

## **What is HIV and how is it transmitted?**

HIV is, by definition, the human immunodeficiency virus. It is a virus that specifically attacks humans by assaulting the immune system.

A typical virus causes the common cold or diseases such mumps, measles, chicken pox, etc. Viruses are normally spread through airborne particles and somewhat casual person-to-person contact.

These common viruses can survive in the air, water, food, saliva, etc. This makes them very easy to spread and it is usually fairly easy for the body's own immune system to seek out and destroy these viruses in a fairly short period of time.

HIV however is a different type of virus. HIV is a blood-borne virus that can only be passed when infected blood comes in contact with uninfected blood (and certain body fluids such as semen).

This virus cannot survive in air, on food, or in water. (Hepatitis can live in dry blood for 12-20 days!) And HIV attacks the immune system itself making it that much more dangerous and harder for the body to overcome. In fact, HIV is actually a retrovirus that can live in a host for a long period of time without any sign of illness.

A retrovirus is composed of RNA rather than DNA. RNA contains our cells blueprint which makes it easy to mutate and evolve quickly. RNA viruses normally directly hijack a host cell. HIV is different. HIV infects the white blood cells called lymphocytes within the immune system. After the virus enters the host cell, in this case the T-cell, the RNA creates two strands of viral DNA, the opposite of human cells. This is called reverse transcription. This new DNA then hijacks the cell and produces new RNA replicas. This is what is referred to as a retrovirus since it works in

reverse.

T-Cells and B-Cells are both part of our immune system and are produced in bone marrow. B cells mature in Bone marrow which is why they are called B cells. B Cells make the antibodies that recognize any organic molecule. T Cells mature in the Thymus, which is why they are called T-Cells, and only recognize protein antigens and then only when formally introduced. Killer T cells (CD8) are cytotoxic lymphocytes that kill virus infected cells by triggering it to commit suicide. Helper T cells (CD4) help B cells become plasma and find germ invaders then release cytokines, which are a type of chemical alarm system, that triggers the rest of the immune system to fight. HIV creates a defect in this system. Remember that T Cells are part of Cellular Acquired Immunity.

The T-Cell that HIV attacks specifically is the T4 cell. This cells normal job is to detect an invader in the body and then display an alarm to the rest of the immune system. The actual HIV takeover is quiet in the T4 until activated which is when it begins to manufacture the viral RNA strands. The infected T4 no longer detects invaders or triggers alarms and eventually will die and thus gradually reduce the T-cell alarm network. So the immune system stops functioning normally and this allows opportunistic diseases within the body.

The major infection sites for normal viruses are areas with mucosal linings. With HIV the major infection sites are bloodstream and CNS. HIV is not known to cross the mucous membrane easily. HIV also can only be found in a body fluid with lymphocytes thus blood, semen, vaginal and cervical secretions, mother's milk, saliva, tears, urine and feces.

The virus is spread through sexual contact with an infected person, by sharing needles and/or syringes (primarily for drug injection with someone who is infected) or, less commonly, (and now very

rare in countries where blood is screened for HIV antibodies), through transfusions of infected blood or blood clotting factors. Babies born to HIV-infected women may become infected before or during birth or sometimes through breast feeding after birth.

In the healthcare setting, workers have been infected with HIV after being stuck with needles containing HIV-infected blood or, less frequently, after infected blood gets into a worker's open cut or a mucous membrane (for example, the eyes or inside of the nose).

There has only been one instance of patients being infected by a healthcare worker in the United States; this involved HIV transmission from one infected dentist to six patients. Investigations have been completed involving more than 22,000 patients of 63 HIV-infected physicians, surgeons, and dentists, and no other cases of this type of transmission have been identified in the United States.

Some people fear that HIV might be transmitted in other ways; however, no scientific evidence to support any of these fears has been found. If HIV was being transmitted through other routes (such as through air, water and insects), the pattern of reported AIDS cases would be much different from what has been observed. For example, if mosquitoes could transmit HIV infection, many more young children and preadolescents would have been diagnosed with AIDS.

All reported cases suggesting new or potentially unknown routes of transmission are thoroughly investigated by state and local health departments with the assistance, guidance and laboratory support from our government's CDCs (Centers for Disease Control). No additional routes of transmission have been recorded, despite a national sentinel system designed to detect just such an occurrence.

To summarize; HIV (human immunodeficiency virus) is the virus that causes AIDS. This virus is passed from one person to another through blood-to-blood and sexual contact by transmission of bodily fluids. In addition, infected pregnant women can pass HIV to their babies during pregnancy or delivery, as well as through breastfeeding. People with HIV have what is called HIV infection. Most of these people will develop AIDS as a result of their HIV infection.

The body fluids proven to spread HIV are:

- Blood
- Semen
- Pre-ejaculate fluids
- Vaginal fluid/secretions and vaginal birth
- Breast milk
- Other body fluids containing blood, including vomit

Fluids that have not been proven to spread HIV (and thus are generally accepted as not being able to) are:

- Saliva
- Snot
- Tears (unless you are an HIV+ vampire)
- Urine/fecal matter (unless there is blood present)
- Sweat
- And any insect bite is not capable of spreading the virus regardless of who they have bitten before)

Additional body fluids that **may** transmit the virus and that health care workers may come into

contact with are:

- Cerebrospinal fluid (that fluid surrounding the brain and the spinal cord)
- Synovial fluid (that fluid surrounding bone joints)
- Amniotic fluid (that fluid surrounding a fetus)

### **Where did HIV come from?**

It is unknown where HIV originated. Scientists have different theories about the origin of HIV, but none have been proven. The earliest known case of HIV was from a blood sample collected in 1959 from a man in Kinshasha, Democratic Republic of Congo. (How he became infected is not known.) Genetic analysis of this blood sample suggests that HIV-1 may have stemmed from a single virus in the late 1940s or early 1950s.

And is it not sex with monkeys but rather the eating of infected monkey meat, a delicacy in some countries.

We do know that the virus has existed in the United States since at least the mid to late 1970s. From 1979-1981, rare types of pneumonia, cancer, and other illnesses were being reported by doctors in Los Angeles and New York among a number of gay male patients. These conditions were not usually found in people with healthy immune systems and are now related to HIV infection.

In 1982, public health officials began to use the term "acquired immune deficiency syndrome," or AIDS, to describe the occurrences of opportunistic infections, Kaposi's sarcoma, and Pneumocystis carinii pneumonia in previously healthy men. Formal tracking of AIDS cases began that year in the United States.

The virus that causes AIDS was first isolated by scientists in 1983. The virus was at first named HTLV-III/LAV (human T-cell lymphotropic virus-type III/lymphadenopathy- associated virus) by an international scientific committee. This name was later changed to HIV (human immunodeficiency virus).

### **How long after being infected with HIV does AIDS appear?**

Since 1992, scientists have estimated that about half the people with HIV develop AIDS within 10 years after becoming infected. This time varies greatly from person to person and can depend on many factors, including a person's health status and their health-related behaviors.

Today there are medical treatments that can slow down the rate at which HIV weakens the immune system. There are other treatments that can prevent or cure some of the illnesses associated with AIDS, though the treatments do not cure AIDS itself. As with other diseases, early detection and preventative health care offers more options for treatment.

The facts used as evidence that HIV causes AIDS are:

- Tests for HIV antibody in persons with AIDS show that they are infected with the virus.
- HIV has been isolated from persons with AIDS and grown in pure culture.
- Studies of blood transfusion recipients before 1985 documented the transmission of HIV to previously uninfected persons who subsequently developed AIDS.

Although it is known that HIV is the cause of AIDS, much remains to be known about exactly how

HIV causes the immune system to break down. Scientists are constantly searching for and discovering more information about HIV and AIDS. These discoveries help people learn how to stop transmission of the virus and help people infected with HIV to live longer, healthier lives.

One important question to answer is why some people exposed to HIV become infected and others do not. Scientists believe it is most likely because of how infectious the other person is and how they are exposed. Example: more than 90 percent of persons who were exposed through an HIV-infected unit of blood became infected, so we know that blood-to-blood contact is a very efficient way that HIV is spread. On the other hand, many healthcare workers are splashed with blood or bloody body fluids and this type of exposure has caused very few occurrences of HIV infection.

As the disease progresses, not everyone has symptoms. What this means is that they may be transmitting the virus in Phase 1 without even knowing they have it. This is one of the factors that contributes to the spread of the virus. If everyone who contracted the virus presented symptoms from the start, it would be less likely that they would unknowingly pass the virus on or put others at risk of contracting the disease.

The actual progression of the disease is associated with a persons decreasing number of active helper T-cells and the increasing counts of the virus itself. The typical pattern is:

- Phase 1 - person is infected with HIV - the virus is present but may be pooling in white blood cells with no immediate immune response. Any test is negative, no symptoms, but person can transmit. This phase can last a year or more, with the average being 3-6 months

in sexually transmitted cases.

- Phase 2 - in acute primary HIV infection, antibodies are now detectable in blood and test will show positive - 70% of cases experience fatigue, swollen glands, fever, weight loss, headaches, drowsiness and confusion within several weeks of exposure. Symptoms usually last approximately two weeks and are sometimes mistaken for the flue or mononucleosis.
- Phase 3 - Asymptomatic Period - no symptoms or opportunistic disease are obvious. Virus is busy replicating itself and killing off immune system cells and the body seems able to keep up the fight. At this phase medical intervention helps to limit the viral growth and increase life expectancy. Length of this phase varies, depending on the persons initial health, kind of treatment received and other factors. This phase last 1-15 years with the median average of 10.
- Phase 4 & 5 - Symptoms of opportunistic disease or AIDS-related cancers become apparent and eventually debilitation. Normal helper T-cell count which is normally 800-100/mL blood drops to <200.

### **What is the definition of AIDS?**

The acronym AIDS stands for acquired immune deficiency syndrome.

*Acquired* means this is not naturally occurring or spontaneously developed within an individual. The person has to have contracted HIV from someone else, directly (sexual intercourse or IV drug use) or indirectly (blood transfusion).

*Immune* refers to the system of your body that fights off foreign invaders such as bacteria or other microbes. If you have a healthy immune system that means your body is naturally able to protect itself from invasion. An impaired immune system is not as able to fight off attack and allows the body to be more easily overcome by diseases.

*Deficiency* means that something is deficient or is depleted. In this usage, deficiency refers directly to the condition of the immune system. The immune system becomes deficient because the virus first hides itself in healthy cells to fool the body's defenses.

*Syndrome* - A syndrome is a group of clinical (meaning reported or observed, not from lab tests) collection of symptoms that make up a disease or condition. With different diseases or conditions different symptoms will be present. Each has its own set of symptoms that help medical professionals identify it. With acquired immune deficiency syndrome there are key indicators that the immune system is no longer functioning at its peak and that it is "deficient." If this deficiency is caused by HIV then it is labeled as AIDS.

So, HIV is the virus that causes AIDS and AIDS is the name for the condition caused by HIV.

## **HIV/AIDS Statistics**

AIDS was first recognized as a specific disease in the United States in 1983 but through research it is known that it has been in the US since 1979. It was in the Caribbean and Africa long before that.

In the United States, the CDC (Centers for Disease Control) monitors a surveillance system which is an ongoing, systematic collection analysis, interpretation and dissemination of data regarding

what is referred to as a health-related event. This is the source of information on HIV/Aids in the nation. Individual state health departments collect and submit information to the CDC. HIV/Aids as a term refers to 3 categories of diagnoses: (1) a diagnosis of HIV infection (not AIDS), (2) a diagnosis of HIV infection and a later diagnosis of AIDS, and (3) concurrent diagnoses of HIV infection and AIDS. Understand that this information is only as good as the data collected and many people are living with HIV without their knowledge.

In the United States, the CDC estimates that up to 988,376 people are infected with HIV as of 2005. There are over 400,000 new infections each year, half of which are in people less than 25. Approximately 70% are men and 30% are women. In the men who are infected, 60% are infected through homosexual intercourse, 25% through the use of drug needles and 15% through heterosexual intercourse. In the women who are infected, 75% are through heterosexual intercourse and 25% through drug use. It is the 5<sup>th</sup> leading cause of death in people age 25-44 and the leading cause of death of black men in the same age group.

Based on estimates from the U.S. Agency for International Development (USAID), approximately 64.9 million people have been infected with HIV worldwide since the start of the global epidemic. In 2004, an estimated 4.9 million people became newly infected with HIV, almost 13,500 people per day. Today, some 37.8 million people are living with HIV, almost 8,500 people die everyday due to AIDS with a total of 3.1 million deaths in 2004 alone. More than 32 million deaths have occurred since the first cases of AIDS were identified in 1981.

### **How is HIV transmitted?**

The major sites for HIV are blood and the central nervous system fluids. The most dangerous

substances seem to be blood, semen and pre-ejaculate fluid, cervical and vaginal secretions and possibly feces., however as previously mentioned cerebrospinal fluid, synovial fluid and amniotic fluid may also be transmitters. Any body fluid or substance that contains lymphocytes can be a carrier. HIV transmission occurs when these substances travel from inside the body of one person to inside the body of another.

HIV can enter the body through a vein, the anus, the vagina, the penis, the mouth, other mucous membranes, or cuts and sores. Intact, healthy skin is an excellent barrier against HIV and other viruses and bacteria.

These are the most common ways that HIV is transmitted from one person to another:

- By having sexual intercourse (anal, vaginal, or oral sex) with an HIV-infected person
- By sharing needles or injection equipment with another drug user who is infected with HIV
- From HIV-infected women to babies before or during birth

HIV also can be transmitted through transfusions of infected blood or blood clotting factors. However, since 1985, all donated blood in the United States has been tested for HIV. Therefore, the risk of infection through transfusion of blood or blood products is extremely low. The U.S. blood supply is considered to be among the safest in the world.

Some healthcare workers have become infected after being stuck with needles containing HIV-infected blood or, less frequently, after infected blood contact with the worker's open cut or through splashes into the worker's eyes or inside their nose. There has been only one instance of

patients being infected by an HIV-infected health care worker.

Concerning the survival of HIV in the environment, two facts are:

- HIV does not survive well outside the body. HIV present in a substance outside the host remains infectious until the substance dries up. This can be minutes or hours.
- HIV has to be grown in large amounts to be studied in laboratories. In water or blood solutions (10% blood, 90% saline) HIV remains infectious for 2 weeks at room temperature. Refrigerated, it will remain valid indefinitely.

Although researchers have detected HIV in the saliva of infected individuals, no evidence exists that the virus is spread by contact with saliva. Laboratory studies reveal that saliva has natural compounds that inhibit the infectiousness of HIV. Studies of people infected with HIV have found no evidence that the virus is spread to others through saliva. Scientists also have found no evidence that HIV is spread through sweat, tears, urine or feces.

Casual contact, being in a room with an individual with HIV, touching doorknobs, sharing the bathroom is not at-risk behavior. Ten years of research of families of HIV-infected people have shown clearly that HIV is not spread through casual contact such as the sharing of food utensils, towels and bedding, swimming pools, telephones or toilet seats. No known cases have been reported. This means that there is little or no possibility of casual transmission between family members who are not involved in high-risk behaviors with the infected individual. Fear is far greater than the actual risk.

Transmission from kissing on the lips, exchange of blood-free saliva or exposure to the sweat of an infected individual is extremely unlikely (if not impossible). Caution is however, always advised.

## **What constitutes a diagnosis of AIDS? What are the symptoms?**

As already stated, AIDS stands for acquired immune deficiency syndrome and AIDS is caused by HIV. An HIV-infected person receives a diagnosis of AIDS after developing one of the CDC-defined AIDS indicator illnesses. An HIV-positive person who has not had any serious illnesses also can receive an AIDS diagnosis on the basis of certain blood tests.

Many of the infections that cause problems or may be life-threatening for people with AIDS are usually controlled by a healthy immune system. The immune system of a person with AIDS is weakened to the point that medical intervention may be necessary to prevent or treat serious illness.

Today there are medical treatments that can slow down the rate at which HIV weakens the immune system. There are other treatments that can prevent or cure some of the illnesses associated with AIDS. As with other diseases, early detection offers more options for treatment and preventative care.

The only way to determine for sure whether you are infected is to be tested for HIV infection. You cannot rely on symptoms to know whether or not you are infected with HIV. Many people who are infected with HIV do not have any symptoms at all for many years. A positive HIV test result does not mean that a person has AIDS. A diagnosis of AIDS is made by a physician using certain clinical criteria (e.g., AIDS indicator illnesses). The tests available determine AIDS by testing for the presence of antibodies in the blood. The typical first blood test given is an ELISA (enzyme-linked immunosorbent assay) test. This test uses components of the immune system and chemicals to detect immune response in the body. It involves an enzyme and an antibody or antigen. Since this is sensitive and can yield a false positive, a positive reading is followed by a second ELISA test or

more often a Western Blot test. In this test blood is drawn and specific proteins are detected. This is the standard for determining the presence of HIV. Additionally, home test kits are now available and positive results must be reported to the CDC. With this option however, it is this authors opinion that many cases be not be reported or reported long after the fact and later in the progression of the disease.

The following may be warning signs of infection with HIV if you are in an at-risk environment:

- Rapid weight loss
- Dry cough
- Recurring fever or profuse night sweats
- Profound and unexplained fatigue
- Swollen lymph glands in the armpits, groin or neck
- Diarrhea that lasts for more than a week
- White spots or unusual blemishes on the tongue, in the mouth, or in the throat
- Pneumonia
- Red, brown, pink, or purplish blotches on or under the skin or inside the mouth, nose, or eyelids
- Memory loss, depression, and other neurological disorders

However, no one should assume they are infected if they have any of these symptoms. Each of these symptoms can be related to other illnesses. Again, the only way to determine whether you are infected is to be tested for HIV infection.

Similarly, you cannot rely on symptoms to establish that a person has AIDS. The symptoms of

AIDS are similar to the symptoms of many other illnesses. AIDS is a medical diagnosis made by a doctor based on specific criteria established by the CDC.

### **Complications of HIV/AIDS**

At the point where HIV has disabled normal immune function, the body is incapable of fending off those diseases that healthy people have no problems with.

There are a list of diseases that were formerly obscure but are now closely associated with AIDS and are now called "indicator diseases" in at-risk populations.

- Pneumocystis carinii Pneumonia (PCP) - a protozoal infection of the lungs
- Cytomegalovirus (CMV) - a member of the herpes family that can cause retinitis and blindness, colitis, pneumonia and infection of the adrenal glands
- Kaposi's sarcoma (KS) - a type of skin cancer
- Non-Hodgkin's lymphomas - HIV specifically initiates the cancer cell replication with a variety of lymphomas in addition to KS

Infection with HIV can weaken the immune system to the point that it has difficulty fighting off certain infections. These types of infections are known as "opportunistic" infections because they take the opportunity a weakened immune system gives to cause illness. Some opportunistic diseases associated with AIDS and people with AIDS are: gastro-intestinal disturbances, herpes simplex, meningitis, shingles, hepatitis C and many others.

Note: When tuberculosis occurs simultaneously with HIV, the risk of the TB becoming active and potentially contagious rises exponentially with each year of co-infection. So, even though it is hard to get HIV without intimate contact, it is NOT difficult to catch the contagious complications of AIDS.

## **AIDS Research**

AIDS research is focused on those variables that determine how long an HIV-positive person can control the virus. Some HIV-positive people never develop symptoms or develop them slower than most with the virus. These people are referred to as "long-term nonprogressors" and they provide the clues for fighting the virus once it has become established. There are 3 main resistance factors:

- Host resistance - The genetic mutation in the immune system of the person infected seems to create fewer places for the virus to attach to their immune system. This lowers the chance for a successful invasion by the virus.
- Immune system response - When the virus invades a cell, a virus fragment is displayed on the cell's membrane much like a marquee proclaiming 'Kilroy was here'. This signals the immune system that the cell has been compromised and needs to be destroyed. Normally HIV slows down the display or hides it by copying the normal cell membrane. By improving this display mechanism, the immune system response could be more aggressive.
- Virulence of the virus - When HIV is weakened by meds or improved immune response, it is still transmittable. If, however, the virus is weakened, the new host is better able to control.

It. This relative virulence is difficult to measure unfortunately.

Most long-term nonprogressors probably have a combination of these factors/variables.

On July 9th, 2010 the NIH announced that scientists have discovered two antibodies called VRCO1 and VRCO2 which prevent up to 90% of known HIV strains. This is a major breakthrough in the ongoing fight against the HIV virus. While there are drugs on the market to slow down the progression of the disease, a cure has not been found. The discovery of these new antibodies is definitely a step in the right direction. Using these antibodies, scientists can begin working to develop new vaccines to prevent the virus in up to 90% of its strains, thus greatly reducing the chances of transmission.

### **Is there a connection between HIV and other sexually transmitted diseases?**

Yes. Having a sexually transmitted disease (STD) can increase a person's risk of becoming infected with HIV, whether the STD causes open sores or breaks in the skin (e.g., syphilis, herpes, chancroid) or does not cause breaks in the skin (e.g., Chlamydia, gonorrhea).

If the STD infection causes irritation of the skin, breaks or sores may make it easier for HIV to enter the body during sexual contact. Even when the STD causes no breaks or open sores, the infection can stimulate an immune response in the genital area that can make HIV transmission more likely.

In addition, if an HIV-infected person also is infected with another STD, that person is three to

five times more likely than other HIV-infected persons to transmit HIV through sexual contact.

### **What are Possible HIV Risk Factors?**

**Unsafe Sex:** The act of sexual intercourse is the main transmission route of HIV, therefore sexual acts with an at-risk partner are the main causes of HIV transmission. It is possible to become infected with HIV through vaginal sex, anal sex and the act of performing oral sex or having oral sex performed on you. This is especially true if there are cuts or open sores in or around any of these areas or if a partner has another sexually transmitted disease (STD). Bodily fluids may enter through the vagina, the urethra, the mouth, the anus or directly into the body through the cuts or open sores.

Vaginal, unprotected (without a condom) sex is the most common way the virus is transmitted in most of the world.

**Injecting Drugs:** At the start of every intravenous injection, blood is introduced into needles and syringes and since HIV can be found in the blood of a person infected with the virus, the reuse of a blood-contaminated needle or syringe by another drug injector (sometimes called "direct syringe sharing") carries a high risk of HIV transmission because infected blood can be injected directly into the bloodstream. In addition, sharing drug equipment (or "works") can be a risk for spreading HIV.

Infected blood can be introduced into drug solutions by:

- Using blood-contaminated syringes to prepare drugs
- Reusing water
- Reusing bottle caps, spoons, or other containers ("spoons" and "cookers") used to dissolve

drugs in water and to heat drug solutions

- Reusing small pieces of cotton or cigarette filters ("cottons") used to filter out particles that could block the needle.

"Street sellers" of syringes may repackage used syringes and sell them as sterile syringes. For this reason, people who continue to inject drugs should obtain syringes from reliable sources of sterile syringes, such as pharmacies. It is important to know that sharing a needle or syringe for any use, including skin popping and injecting steroids, can put one at risk for HIV and other blood-borne infections.

**Tattoos or Body Piercing:** A risk of HIV transmission does exist if instruments contaminated with blood are either not sterilized or disinfected or are used inappropriately between clients.

The CDC recommends that instruments that are intended to penetrate the skin be used once, then disposed of in a puncture resistant container visibly labeled for biomedical infectious waste or thoroughly cleaned and sterilized.

Personal service workers who do tattooing or body piercing should be educated about how HIV is transmitted and take precautions to prevent transmission of HIV and other blood-borne infections in their settings. If you are considering getting a tattoo or having your body pierced, ask staff at the establishment what procedures they use to prevent the spread of HIV and other blood-borne infections, such as hepatitis B virus. You also may call the local health department to find out what sterilization procedures are in place in the local area for these types of establishments.

**Playing Sports:** There are no documented cases of HIV being transmitted during participation in sports. The very low risk of transmission during sports participation would involve sports with

direct body contact in which bleeding might be expected to occur.

If someone is bleeding, their participation in the sport should be interrupted until the wound stops bleeding and is both antiseptically cleaned and securely bandaged. There is no risk of HIV transmission through sports activities where bleeding does not occur.

**Mosquito Bites:** From the start of the HIV epidemic, there has been concern about HIV transmission of the virus by biting and bloodsucking insects, such as mosquitoes. Studies conducted by the CDC and elsewhere have shown no evidence of HIV transmission through mosquitoes or any other insects — even in areas where there are many cases of AIDS and large populations of mosquitoes. Lack of such outbreaks, despite intense efforts to detect them, supports the conclusion that HIV is not transmitted by insects.

The results of experiments and observations of insect biting behavior indicate that when an insect bites a person, it does not inject its own or a previously bitten person's or animal's blood into the next person bitten. Rather, it injects saliva, which acts as a lubricant so the insect can feed efficiently. Diseases such as yellow fever, West Nile virus, and malaria are transmitted through the saliva of specific species of mosquitoes. HIV lives for only a short time inside an insect and, unlike organisms that are transmitted via insect bites, HIV does not reproduce (and does not survive) in insects. Thus, even if the virus enters a mosquito or another insect, the insect does not become infected and cannot transmit HIV to the next human it bites.

There also is no reason to fear that a mosquito or other insect could transmit HIV from one person to another through HIV infected blood left on its mouth parts. Several reasons help explain why this is so. First, infected people do not have constantly high levels of HIV in their bloodstreams.

Second, insect mouth parts retain only very small amounts of blood on their surfaces. Finally, scientists who study insects have determined that biting insects normally do not travel from one person to the next immediately after ingesting blood. Rather, they fly to a resting place to digest the blood meal.

### **What is the risk to Healthcare Workers on the job?**

The risk of healthcare workers acquiring HIV on the job is very low, especially if they carefully follow universal precautions (i.e., using protective practices and personal protective equipment to prevent HIV and other blood-borne infections). It is important to remember that casual, everyday contact with an HIV-infected person does not expose health care workers or anyone else to HIV. For health care workers on the job, the main risk of HIV transmission is through accidental injuries from needles and other sharp instruments that may be contaminated with the virus. Even this risk is small, however.

Scientists estimate that the risk of infection from a needle jab is less than one percent, a figure based on the findings of several studies of healthcare workers who received punctures from HIV-contaminated needles or were otherwise exposed to HIV-contaminated blood.

### **What is the way to reduce risk to Healthcare Workers?**

As health care professionals, there are precautions that need to be taken to avoid infection. First, every patient must be treated as if they are HIV-infected. Many people with HIV/AIDS do not exhibit obvious symptoms of the disease and may appear to be healthy. Precautions should even be taken with patients who deny being infected with HIV, as they may not realize they are infected or

they may be concealing their disease for fear of discrimination.

### **The Barrier Method within Healthcare Environments**

Today, health care professionals have a wide variety of physical barrier devices available. These devices are designed to reduce or prevent contact with blood and/or body fluids of patients who may be infected with the HIV virus or other communicable diseases.

Some examples of protective gear include:

- Gloves.
- Protective face shields or safety glasses.
- Face masks.
- Gowns and aprons.

Gloves should always be worn on healthcare workers with dry, chapped hands or cuts on the hands.

Patients may have minute breaks in the skin which may allow for easy transfer of the HIV virus.

Gloves should never be re-used. They should be removed by rolling them off the hands inside out and discarded in a container for infectious waste.

Contaminated gowns and aprons should be placed in an appropriately labeled covered container and undergo a sterilization process before being reused. The water temperature should reach at least 140° F. The heat generated in most dryers will usually be sufficient for decontamination.

Protective face shields or safety glasses prevent blood or body fluids from getting into the eyes, which is one of the most vulnerable openings in the body.

### **Use of Needles and Sharp Instruments**

Needles and sharp instruments used in the healthcare environment should be handled with care. Needles should never be recapped or transported out of the treatment room. They must be discarded in a puncture resistant container visibly labeled for biomedical infectious waste. Heavy duty gloves and appropriate face protection should be worn when giving patients injections or drawing blood.

### **Using Disinfection and Sterilization**

Before coming in contact with each patient, each health care worker should wash their hands with antibacterial soap and water. Soaps containing 4% chlorhexidine gluconate or 3% parachlorometaxyleneol (PCMX) are considered the best. If unprotected skin should come in contact with a patient's body fluids or blood, a solution of 70% alcohol or povidone iodine (Betadine®) is recommended to disinfect the skin.

If blood or body fluids should spill, disinfection can be accomplished using a solution of sodium hypochlorite (1 part household bleach to 99 parts water or 1/4 cup bleach to 1 gallon of water) prepared daily. Bleach, however, is corrosive to metals (especially aluminum) and should not be used to decontaminate medical instruments with metallic parts.

Gloves should always be worn during cleaning and decontaminating procedures.

Disinfect all equipment and surfaces in the workplace after contact with each patient using the above technique. Keeping a sanitary work environment will reduce the risk of HIV and other infectious diseases.

## How can infection be prevented?

**Injection Drug Users:** The recommendation of the CDC is that people who inject drugs should be regularly counseled to:

- Stop using and injecting drugs
- Enter and complete substance abuse treatment, including relapse prevention

For injection drug users who cannot or will not stop injecting drugs, the following steps may be taken to reduce personal and public health risks:

- Never reuse or "share" syringes, water or drug preparation equipment
- Only use syringes obtained from a reliable source (such as pharmacies or needle exchange programs)
- Use a new, sterile syringe to prepare and inject drugs
- If possible, use sterile water to prepare drugs; otherwise, use clean water from a reliable source (such as fresh tap water)
- Use a new or disinfected container ("cooker") and a new filter ("cotton") to prepare drugs
- Clean the injection site prior to injection with a new alcohol swab
- Safely dispose of syringes after one use

If new, sterile syringes and other drug preparation and injection equipment are not available then previously used equipment should be boiled in water or disinfected with bleach before reuse. Injection drug users and their sex partners also should take precautions, such as using condoms consistently and correctly, to reduce risks of sexual transmission of HIV. Persons who continue to inject drugs should periodically be tested for HIV.

**Safe Sex:** Not having (abstaining from) sexual intercourse is the most effective way to avoid STDs, including HIV. For those who choose to be sexually active, the following HIV prevention activities are highly effective:

- Engaging in sex that does not involve vaginal, anal, or oral sex
- Having intercourse with only one uninfected partner
- Using latex condoms every time you have sex

Obviously, the best way to avoid sexual transmission is to avoid sex. The next best scenario is monogamous low-risk sex with a long-term uninfected partner. Your risk factors go up with more partners and more high-risk sex practices (without proper precautions).

Studies have shown that latex condoms are highly effective in preventing HIV transmission when used consistently and correctly. These studies looked at uninfected people considered to be at very high risk of infection because they were involved in sexual relationships with HIV-infected people.

The studies found that even with repeated sexual contact, 98-100 percent of those people who used latex condoms correctly and consistently did not become infected.

## **Treatment of AIDS**

When AIDS first surfaced in the United States, no drugs were available to combat the underlying immune deficiency and few treatments existed for the opportunistic diseases that resulted. For more than 10 years, however, therapies have been developed to fight both HIV infection and its associated infections and cancers.

A number of drugs have been approved by The Food and Drug Administration for the treatment of HIV infection. The first group of drugs used to treat HIV infection were called nucleoside analog reverse transcriptase inhibitors (NRTIs), and interrupt an early stage of virus replication. Included in this class of drugs are zidovudine (also known as AZT), zalcitabine (ddC), didanosine (ddI), stavudine (D4T), lamivudine (3TC) and abacavir succinate. These drugs are used to slow the spread of HIV in the body and delay the onset of opportunistic infections. They do NOT prevent transmission of HIV to other individuals. NRTIs such as delavirdine, nevirapine and efavirenz are also available for use in combination with other antiretroviral drugs.

Another class of anti-HIV drugs, called protease inhibitors, interrupts virus replication at a later step in the life cycle. These include ritonavir (Norvir), saquinavir (Invirase), indinavir and nelfinavir. Because HIV can become resistant to each class of drugs, combination treatment using both is necessary to effectively suppress the virus.

Currently available antiretroviral drugs do not cure people of HIV infection or AIDS, however, and they all have side effects that can be severe. A depletion of red or white blood cells is a major side effect of AZT. The most common side effects associated with protease inhibitors include nausea, diarrhea and other gastro-intestinal symptoms. DdI can cause an inflammation of the pancreas and painful nerve damage. Protease inhibitors also can interact with other drugs resulting in serious side effects.

A number of drugs are available to help treat the opportunistic infections which people with HIV are especially prone. These drugs include foscarnet and ganciclovir, used to treat cytomegalovirus eye infections, fluconazole to treat yeast and other fungal infections, and TMP/SMX or pentamidine

to treat *Pneumocystis carinii* pneumonia (PCP).

In addition to antiretroviral therapy, adults with HIV whose CD4+ T-cell counts drop below 200 are given treatment to prevent the occurrence of PCP, which is one of the most common and deadly opportunistic infections associated with HIV. Children are given PCP preventive therapy when their CD4+ T-cell counts drop to levels considered below normal for their age group. Regardless of their CD4+ T-cell counts, HIV-infected children and adults who have survived an episode of PCP are given drugs for the rest of their lives to prevent a recurrence of the pneumonia.

HIV-infected individuals who develop Kaposi's sarcoma or other cancers are treated with radiation, chemotherapy or injections of alpha interferon, a genetically engineered naturally occurring protein.

An actual cure for AIDS is difficult because in the process of the virus converting from RNA to DNA, the virus changes so minutely, just enough to make it resistant to drugs as well as activation of the body's immune system. Drug combining has most always been the answer, thus, the famous AIDS cocktail. Sometimes however these combinations are toxic to the actual patient over the long-term.

The most successful AIDS treatments involve interrupting viral replication. HAART (highly active antiretroviral therapy) has been seen to slow progression in man patients but it can't find the virus when it lives in memory T-cells, which have a life expectancy of more than 60 years.

Treatment in the US can cost well of \$20,000 per year but at least people in the US have

access to treatment. In developing countries this is not the case, where AIDS statistics are growing fastest. 90% of the world's AIDS patients have little or no access to treatment.

### **Behavior Modification in dealing with HIV/AIDS individuals as healthcare professionals**

All healthcare professionals must examine their behaviors and attitudes regarding individuals with HIV/AIDS. Through understanding HIV/AIDS and the ability to educate and support patients, we can make a positive difference in the lives of many people.

Understanding the true risks of exposure and the professional and personal precautions you can take will minimize many of the unfounded fears we have of working with HIV/AIDS patients. These people deserve to be treated as any other patient. They are often rejected by friends and family and need the compassion required from healthcare professionals.

As a healthcare professional you have the ability to help improve the mental and emotional state of these patients while attending to their needs. This is done by a positive and well-informed attitude and showing interest, support and compassion.

### **More Information**

For even more information from the US Centers for Disease Control (CDC) regarding HIV/AIDS please go to the weblibliography and check out the link.

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## HIV/Aids Test

1. HIV cannot survive in which of the following:
  - a) Air
  - b) Food
  - c) Water
  - d) All of the above
2. In the early stages of HIV, many patients suffer from
  - a) Fatigue
  - b) Weight loss
  - c) Swollen lymph glands
  - d) All of the above
3. Normally the human body has how many T cells per milliliter of blood?
  - a) 200
  - b) 1000
  - c) 2000
  - d) 2500
4. Which of the following conditions does NOT often develop in people infected with AIDS
  - a) Kaposi's sarcoma
  - b) Cytomegalovirus (CMV)
  - c) Sickle cell anemia
  - d) Pseumocystis carinii pneumonia (PCP)
5. Which of the following body fluids have not been proven to spread HIV:
  - a) Semen
  - b) Breast milk
  - c) Saliva
  - d) Vomit
6. Proper use of a latex condom completely eliminates the risk of HIV infection
  - a) True
  - b) False
7. Having one's sexual partner test negative for HIV completely eliminates the risk of HIV infection.
  - a) True
  - b) False

8. HIV is actually a retrovirus that can live in a host for a long period of time without any sign of illness
- True
  - False
9. There has never been an instance of patients being infected by a healthcare worker in the United States.
- True
  - False
10. In the United States, the CDC (Centers for Disease Control) monitors a surveillance system to collect, interpret and disseminate HIV/Aids data.
- True
  - False
11. Which physical barrier devices should be used with HIV?
- Gloves
  - Face masks
  - Safety glasses
  - All of the above
12. IF blood or body fluids should spill, disinfection can be accomplished by using:
- A saline solution
  - Mineral oil
  - Warm water
  - A solution of  $\frac{1}{4}$  cup bleach to 1 gallon of water
13. HIV attacks which of the following systems in the body
- Endocrine
  - Lymphatic
  - Immune
  - Digestive
14. The major infection sites of HIV are
- Mucosal linings of the nose and throat
  - Bloodstream and CNS
  - Digestive tract
  - Liver
15. Babies born to HIV-infected women may become infected before or during birth or sometimes through breast feeding after birth.
- True
  - False

## Answer Sheet

### HIV/Aids for Massage Therapists

Name: \_\_\_\_\_ Phone #: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

License # \_\_\_\_\_

#### Directions:

1. Print your name, address and license information in the spaces provided above.
2. Record your answers by question on the form below
3. Send this sheet and the course evaluation sheet to:

The Body Mechanics  
Paula J. Kaprocki, LMT  
660 Andersontown RD  
Dover, PA 17315

Or email your answers to  
[tbm.massage@gmail.com](mailto:tbm.massage@gmail.com)

1. (a) (b) (c) (d)

9. (a) (b)

2. (a) (b) (c) (d)

10. (a) (b)

3. (a) (b) (c) (d)

11. (a) (b) (c) (d)

4. (a) (b) (c) (d)

12. (a) (b) (c) (d)

5. (a) (b) (c) (d)

13. (a) (b) (c) (d)

6. (a) (b)

14. (a) (b) (c) (d)

7. (a) (b)

15. (a) (b)

8. (a) (b)

## Course Evaluation Sheet

We hope that this course has provided you with valuable information as part of your continuing education. We welcome any comments or suggestions to improve your learning experience. Please take a moment to complete this course evaluation and provide us with your feedback. Thank you for choosing The Body Mechanics/Body Balancing for your continuing education.

Please evaluate **HIV/Aids for Massage Therapists** based on the criteria listed.

	Excellent	Good	Fair	Poor
Ease of Reading	4	3	2	1
Applicable Information	4	3	2	1
Content	4	3	2	1
Clear Instructions	4	3	2	1
Quality of Information	4	3	2	1
Quality based on price	4	3	2	1

Please list any course improvements you would make to any of the above-mentioned criteria

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Would you recommend this course or The Body Mechanics/Body Balancing to others? \_\_\_\_\_

Why or why not? \_\_\_\_\_

What further classes would you like to see online? \_\_\_\_\_

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