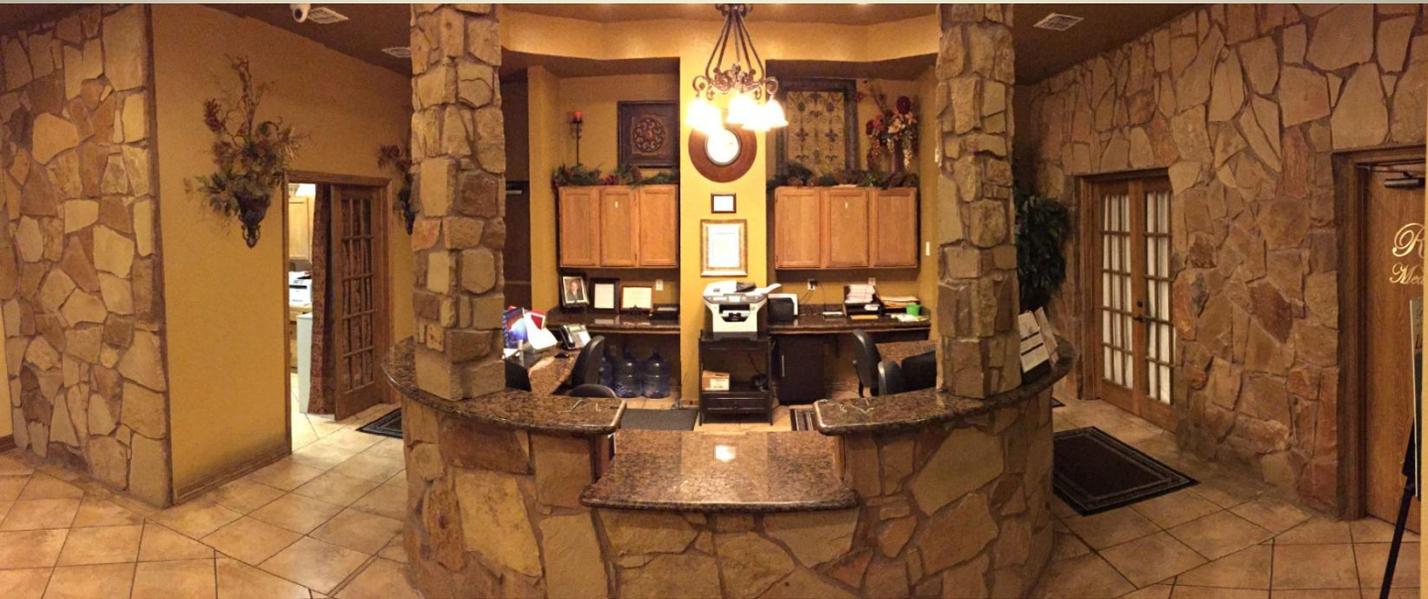


# *The Offices of Dr. Mario A. Martinez*



FOUR LOCATIONS TO BETTER SERVE YOU



## Health & Wellness Tips

by Dr. Mario A. Martinez



*Health & Wellness Tips* is a series of articles written personally by Dr. Martinez. This edition focuses on cancer; what it is and different types.

The featured article in this section is about skin cancer on page 12.



## What is Cancer?

by Mario A. Martinez, M.D.

04/16/2016

*Everyone is concerned about cancer but most of us don't really understand what it is.*

Genes are parts of our DNA. They have a start mechanism, called a start codon, and they have a stop mechanism, called a stop codon. They are preprogrammed in our DNA from birth. For example, we have a gene that tells our bodies to make ears. There is a preprogrammed gene that tells our cells when to make an ear and when to stop making that ear. If we did not have a start codon on the gene that tells our ears when to start developing, we would not have ears. By the same token, if we did not have a stop codon, which tells our cells making an ear when to stop, our ears would continue to grow until they dragged on the ground.

Cancer is runaway cell division. Cancer usually occurs in tissues that undergo frequent cellular replication. Most of the time, cancer is confined to these tissues in which there is a lot of cell turnover. Tissues that have a lot of cellular replication include the lungs, breast, liver, skin, white blood cells, and several others. Some sort of strong stimulus over a prolonged period of time, such as repeated exposure to strong chemicals or energy, is required to knock the stop codon off of a gene. When this occurs, the cell will replicate out of control. This is what causes a tumor or malignancy. Heavy smoking, excessive exposure to sunlight, and exposure to large doses of radiation are just a few of the stimuli that are needed to alter a gene. If a stop codon is destroyed by this stimulus, then the tissue may replicate out of control.

There are other ways in which cancer can occur as well, and there is a hereditary predisposition to some types of cancer. We see this most frequently in breast and

colon cancer but a number of other types of cancer can occur more frequently in people with a strong family history of it. Often patients believe that they have a higher risk for cancer if people in their families have had different types of cancers. If you have a family history of many types of cancer, they are usually not related and pose no increased risk. For example, a female with a family history of prostate cancer has no increased risk of cancer. A male with a family history of cervical cancer and breast cancer has no significant increased risk of cancer in most cases.

Viruses can cause cancer as well. This is because they cannot survive or replicate without a host cell. They are parasites. They land on a host cell and inject their limited genetic material into the cell. This then takes over the DNA of the host cell and forces the host cell to replicate the viral parts by altering the host cell DNA. It could be compared to an invading army that takes over an automobile manufacturing facility. The invaders could then alter the factory to produce bombs and tanks. If part of the alteration of the DNA causes a stop codon to be cut off in a gene of a cell that is still able to replicate, this can lead to runaway cell division of the host cell. This is how HPV (Human papilloma virus) can lead to cervical cancer in women. Hepatitis C virus can cause an increased risk of liver cancer in the same way.

I remember while I was growing up hearing about a "cure for cancer". There is no silver bullet to cure all types of cancer because each type of cancer is different. Cancers are specific to the type of tissue in which they occur. There are even multiple types in cancers that occur within the same tissue in many cases. The best thing you can do to protect yourself from cancer is getting routine checkups at your doctors' office and do the recommended screenings for cancer. These include mammograms and screening colonoscopies. It is also important to wear sunscreen when exposed to prolonged sunlight.



## Cancer and its Causes

Mario A. Martinez, M.D.

05/02/2016

- Liver cancer** (Hepatocellular Carcinoma) can be caused by viral hepatitis. Viruses are unable to replicate without taking over the genetic material of the host cells. If the host cell survives the attack, its DNA will be damaged. If the stop codon on a gene is deleted by the virus, this can lead to runaway cell division (cancer).
- Kidney cancer** (Renal Cell Carcinoma) tends to be a random event but it occurs more frequently in smokers.
- Colon cancer** has a hereditary component. Low fiber diets and smoking have been shown to increase the risk for colon cancer as well. Screening colonoscopies are essential for early detection and treatment. Any patient over 50 years old with anemia should be screened for colon cancer.
- Prostate cancer** occurs more frequently as a man ages. It is related to the decrease in testosterone level that most men experience as we age. This causes cellular replication within the prostate, and the prostate grows larger. There is an increased incidence of prostate cancer in smokers. Checking PSA (prostate specific antigen) levels and prostate ultrasounds are important for early detection. Prostate cancer in young men tends to be very aggressive and often deadly. Prostate cancer in older men tends to be easy to treat and rarely is the cause of death.
- Breast cancer** is very concerning. In my practice, we detect more breast cancer than any other type of cancer. The numbers are alarming. Most of the cases are found by routine mammogram. Ladies, please get your annual mammograms if you are over 40. If a first degree relative (mother or sister) is diagnosed with breast cancer, you should get a mammogram 10 years prior to their age when they were first diagnosed.
- Cervical cancer** is caused by the Human papillomavirus. Before viruses were discovered, doctors suspected there was an infectious process that caused cervical cancer in women. This was because if a man's wife died of cervical cancer, his next wife often developed cervical cancer as well. The Pap smear was invented to detect premalignant cells on the cervix. Please stay current with your Pap smear. I recommend the Gardasil immunizations for both male and female patients of all ages if they are not in a long-term monogamous relationship.
- Thyroid cancer** is one of the easiest cancers to treat and cure. There is a slight hereditary predisposition for developing it but it is mostly a random occurrence. It is usually detected by physical examination followed by ultra sound. Nodules on the thyroid gland tend to grow very slowly. Biopsies are usually only done when nodules are larger than 2 cm. If thyroid cancer is found, the thyroid is surgically removed. The patient is then given radioactive iodine, which is only absorbed by thyroid tissue. Any remaining thyroid tissue is destroyed by the radioactive iodine.
- Lung cancer** is usually caused by smoking. Often, patients will state they quit smoking 10 or 15 years prior to the onset of lung cancer. Second hand smoke can also cause lung cancer. Lung cancer is usually caused by prolonged inhaling of some sort of toxic fumes or chemicals. Rarely, there is a hereditary condition called alpha-1 antitrypsin deficiency that can cause lung cancer.
- Oral cancers** and head and neck cancers are usually associated with tobacco use, either dipping or smoking. Poor oral hygiene increases the amount of time the tissue in the mouth is exposed to carcinogens. If you smoke or dip snuff, keep your mouth meticulously clean.
- Skin cancer** is pretty simple to understand. The lighter your complexion is, the greater your risk of developing skin cancer. It is caused by extreme sun exposure over time; skin cancer is usually not seen in young people. Squamous cell carcinoma usually occurs on body parts below the upper lip. Basal cell carcinoma usually occurs on body parts above the lip. Both types are usually cured by surgically removing the lesions. The lesions are usually dry, scaly patches that sometimes bleed and do not heal.
- Melanoma** is a very aggressive type of skin cancer that can occur in young people. Although there is a hereditary predisposition for it, it can occur with or without a family history of it. Prolonged sun exposure increases the risk of it occurring as well. It often requires extensive surgery, sometimes even requiring skin flaps. Patients sometimes require chemotherapy. It aggressively metastasizes and is often deadly.
- Cancer** is usually associated with weight loss without dieting. Picture the growing tumor as a parasite that is aggressively gobbling up your nutrients. Cancer is almost exclusively a disease of the elderly. Get your screening tests done as recommended, quit smoking, use sunscreen, and get routine lab work.



## Skin Cancer

Mario A. Martinez, M.D.

04/16/2016

Skin cancer that occurs below the lip is almost always squamous cell carcinoma. Skin cancer occurring above the lip is usually basal cell carcinoma. These are both easy to treat and cure if detected early. We cut it out, then you are cured! They have a pretty distinctive appearance, and it is usually pretty easy to spot. Squamous cell carcinoma usually has a raised, reddish, scaly appearance with slightly irregular borders. Basal cell carcinoma usually has a reddish appearance with a central, slightly raised area with central dimpling. The central area with dimpling is usually a pearly white color. Both types are caused by prolonged sun exposure. The darker your natural skin-tone, the more protection you have from occurrence of skin cancer.



Squamous cell carcinoma



Basal cell carcinoma

Melanoma is runaway cell division of the melanocytes. It is much less common than squamous cell or basal cell carcinoma. Melanocytes are the cells in the bottom layer of the epidermis of the skin. These cells produce melanin when stimulated by light energy. The increase in melanin is what causes the skin to become darker when we tan.

Melanoma is not easily cured. It can also occur in parts of the body that are never exposed to sunlight. Researchers still are not sure why there is a hereditary predisposition for it. What is understood is that there is a very strong correlation between periods of prolonged sun exposure in our youth and the occurrence of melanoma later in life. However, there have been reported cases of melanoma that have been found on the bottoms of the feet of African Americans. Patients diagnosed with Melanoma are usually referred to cancer centers such as MD Anderson. Melanoma is usually multi-colored, slightly raised, and has irregular borders. It may resemble a blackberry in that it often has a bubbly-looking appearance. It is usually black with shades of purple and dark red.



melanoma

Exposure to extreme amounts of light energy can cause damage to the DNA of the skin cells. Skin cells replicate frequently. If a stop codon of a skin cell is knocked off by excessive light energy, the cell may begin to divide out of control. Cancer is runaway cell division. Extreme amounts of sunlight in your youth can cause skin cancer to appear later in life; cancer is generally not a disease of young people. It takes years of a lot of sun exposure to damage the DNA to this extent in most cases. However, a couple of severe sunburns in a person with very light skin can lead to these skin cancers later in life as well.

The bottom line is this: Use sunscreen. The lighter your complexion, the more prone you will be to getting a sun burn. Check your skin frequently for changes in moles or the appearance of new lesions on your skin. If you find a suspicious area of skin on your body, tell your doctor about it. If you are sitting in one of my offices right now, think about it. Do you have any areas on your skin that might be concerning? Ask your provider to check it out.