Osteosarcoma - Childhood - Risk Factors [1]

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ON THIS PAGE: You will find out more about the factors that increase the chance of developing this type of cancer. To see other pages, use the menu on the side of your screen.

A risk factor is anything that increases a person's chance of developing cancer. Although risk factors often influence the development of a tumor, most do not directly cause cancer. Some people with several risk factors never develop a tumor, while others with no known risk factors do.

Most osteosarcoma begins sporadically. This means it appears in people who have no other diseases and no family history of bone cancer.

Osteosarcoma may start because of overactive bone cells. Researchers are studying possible changes in genes that lead to this overactivity. They are studying this in a small number of families in which siblings have developed osteosarcoma. Such changes in genes are very uncommon. However, it may help doctors better understand how osteosarcoma begins in people with no family history of the disease. Similar genetic changes may occur in their cancer cells.

Osteosarcoma is probably caused by a combination of genetic changes. Together, they cause immature bone cells to become tumor cells instead of healthy bone.

A gene known as *RB* may be associated with osteosarcoma. This gene is abnormal in many children with a rare type of eye cancer called retinoblastoma [3].

RB is a tumor suppressor gene that controls cell growth. When it is changed, it no longer controls cell growth. As a result, a tumor can form.

In addition, many other changes occur in the genes of osteosarcoma cells.

All osteosarcomas are rare. However, some groups of people are more likely to develop osteosarcoma:

- Teenagers who are having a growth spurt are most likely to develop osteosarcoma. Researchers are looking for a link between rapid bone growth and tumor development.
- Osteosarcoma is about 50% more common in boys than girls.
- People who have received radiation treatment for other types of cancer are more likely to develop osteosarcoma. Also, high doses of radiation treatment at a younger age increase the risk.
- Children with an inherited form of retinoblastoma are more likely to develop osteosarcoma.
- Children with Li-Fraumeni syndrome [4] have a higher risk of sarcoma [5], brain cancer [6], breast cancer [7], leukemia, and adrenal cancer [8]. Li-Fraumeni syndrome is a rare disorder of the *p53* gene. That gene is responsible for getting rid of abnormal cells.
- Children with Werner syndrome [9] have a higher risk of sarcoma, thyroid cancer [10], and melanoma [11]. Werner syndrome is a very rare disorder that may involve the *WRN* gene.
- People with Rothmund-Thomson syndrome are more likely to develop osteosarcoma. Rothmund-Thomson syndrome is an uncommon disorder. It is characterized by short height, rash, hair loss, and skeletal dysplasia. Skeletal dysplasia are noncancerous abnormalities of the bones,

The next section in this guide is Symptoms and Signs [12] *and it explains what body changes or medical problems this disease can cause. Or, use the menu on the side of your screen to choose another section to continue reading this guide.*

Links
[1] http://www.cancer.net/cancer-types/osteosarcoma-childhood/risk-factors
[2] http://www.cancer.net/about-us
[3] http://www.cancer.net/node/31381
[4] http://www.cancer.net/node/19133

[5] http://www.cancer.net/node/31379
[6] http://www.cancer.net/node/31327
[7] http://www.cancer.net/node/31322
[8] http://www.cancer.net/node/31341
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[11] http://www.cancer.net/node/31265
[12] http://www.cancer.net/node/19471