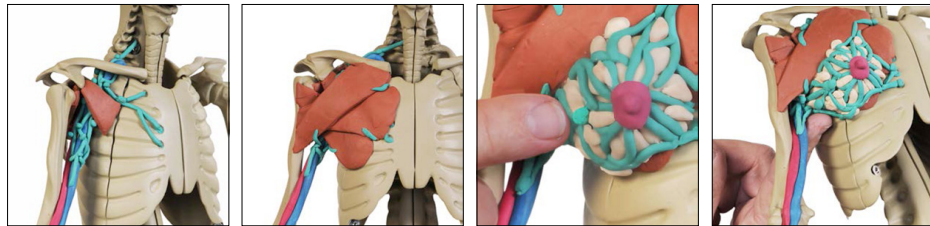


7. If blood vessels are already built on the student's MANIKEN® model explain to students how cancer cells can move from the tissue to the blood stream and be spread throughout the body. If blood vessels are not done yet, use the diagram above as a reference.
8. After completing the clay breast, supplement your lesson by defining hereditary risk factors, identify other risk factors for breast cancer, and identify the signs and symptoms of breast cancer. Please contact us for Teri's additional tips and activities.

Please contact us for Teri's additional tips and activities.

[1] <http://www.cancer.gov/cancertopics/types/breast>. National Cancer Institute, 2012
 [2] <http://www.cancer.gov/cancertopics/types/breast>. National Cancer Institute, 2012

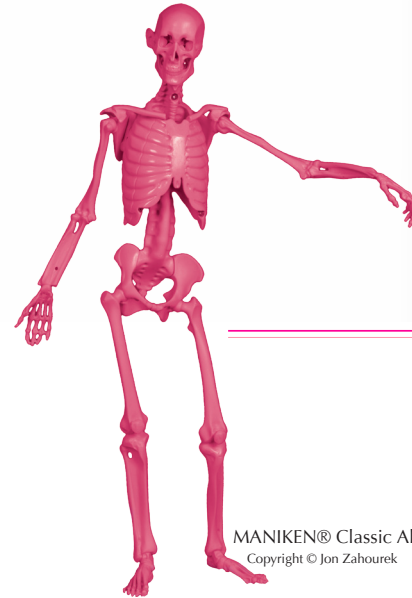


For a step-by-step instruction on how to build the breast and the lymphatic system in clay, please see our StepByStep™ Series Workbook; photos excerpted from *An Anatomy in Clay® Workbook; The Simplified Human Female Breast and its Lymphatics*. Copyright © 2012 Jon Zahourek Inc. All rights reserved.



ANATOMY IN CLAY®
LEARNING SYSTEM

The Mind Cannot Forget What The Hands Have Learned.™



MANIKEN® Classic Albinus Model
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October: Breast Cancer Awareness Month

Every three minutes, a woman in the United States is diagnosed with breast cancer.

In support of America's **Breast Cancer Awareness Month** in October, Teri Fleming, one of our lead educator advocates, has donated this activity idea using the ANATOMY IN CLAY® Learning System.

It is her contribution, as a breast cancer survivor, to show the ease of teaching awareness to our fellow teachers and students.

Objectives

- Review breast cancer statistics
- Define cancer and, specifically, breast cancer
- Identify the parts of the breast
- Build the breast and associated lymph node as a basis for a correct breast exam

Breast Cancer Information and Resources

Breast Cancer Statistics

- Every three minutes, a woman in the United States is diagnosed with breast cancer.
- Every twelve minutes a woman dies from breast cancer.
- This year, approximately **226,870¹** women in the United States will be diagnosed with invasive breast cancer.
- Approximately **39,510²** women will die from breast cancer.
- No one dies of cancer in the breast, only of cancer that has spread to other parts of the body.

What is Cancer?

- Typical cells in the body multiply only when they are told to do so by genes or other cells in their surrounding area.
- Cancer cells disregard the usual control on production and follow their own internal plan for reproduction.
- Cancer cells also have the ability to migrate from one site in the body where they began and invade other tissues to form tumors at other sites inside the body. This is called metastasis.
- The change of a cell into cancer comes about through the accumulation of mutations in the specific classes of genes within it or other outside environmental factors.

What exactly is Breast Cancer?

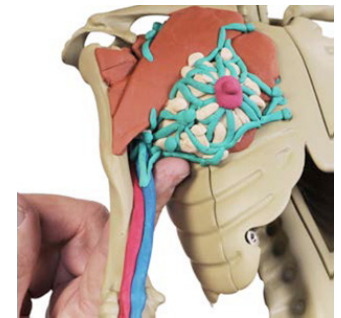
- Cancer involves the abnormal multiplication and spread of cells in the body.
- It is usually caused by mutations in somatic cell genes that regulate cell growth.
- Almost every tissue in the body can produce cancer; some even generate many different types of cancer.
- However, cancer mostly occurs in cells that divide and reproduce more than other cells.

The Breast:

- The breast is a glandular organ.
- It is made up of a network of mammary ducts.
- Each breast has about 15-20 mammary ducts that lead to lobes that are made up of lobules.
- The lobules contain cells that secrete milk that are stimulated by estrogen and progesterone which are ovarian hormones.

Building the Breast

If students' MANIKEN® models have pectoralis muscles, you can begin building the breast on the surface of the chest muscle. If not, have students build the 3 parts of the pectoralis major.



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- Begin by having students use a piece of buff colored clay and form a teardrop shaped mass, which will represent the breast tissue, without the surrounding connective tissue. The size of the breast will vary, let students know that breast size, like many other inherited traits is genetic, determined by their DNA and hormone levels.
- Using a coffee straw, have students add texture to the breast after placing the breast mass on the chest wall, superficial to the pectoralis major muscle. Use the picture above for reference.
- Ask students to add an areola and nipple on the breast mass.
- Using strings of green clay, which represent the lymphatic vessels, have students build the rings around the nipple with radiating branches.
- Ask students to build a lymph vessel up towards the axilla (armpit) and add at least 11 nodes to the axillary area.
- Explain that the first node is referred to as the sentinel node and is biopsied whenever breast cancer is found in the breast. This will tell the doctor if the cancer has spread past the breast. Other nodes will also be tested to determine the extent of the metastasis and in order to stage the cancer for treatment options.