Cancer

By Britney Schultz
OUTLINE

• Define Cancer
• Epidemiology
• Clinical Aspects
  • Symptoms
  • Self Examinations
  • Diagnosis
  • Tests and Evaluation
  • Complications
• Treatment
• Effects of Exercise
  • Disability
  • Medications
  • Acute
  • Chronic
• Exercise Testing
• Exercise Prescription
• Conclusion
Hundreds of diseases that share the common feature of uncontrolled abnormal growth and proliferation of cells.

Most cancers take the form of tumors.

You could have Benign tumors or Malignant tumors.

* The spreading of cancer cells is called metastasis.

* Given from parents or environmental

Carcinomas – most common type of cancer that affects skin, breast, uterus, prostate, lungs, and gastrointestinal tract.

Sarcomas- are found in the muscle, bone, cartilage, and fat

Leukemia- are cancers of the blood-forming cells which mostly resides in the bone.

Lymphomas – resides in the lymph nodes.
http://www.youtube.com/watch?v=LEpTTolebqo
Half of all men and one-third of all women in the US will develop cancer during their lifetimes.

1.4 million people in the United States are diagnosed each year.

The cost of this disease is estimated to be more than $205 billion.

Lung cancer is the number one cancer killer for both men and women.
Prostate Cancer
* Is the most common cancer among men.
* 1 in 6 men will develop prostate cancer.
* 28,000 will die yearly

Breast Cancer
* Is the most common cancer among women.
* 1 in 7 women will develop breast cancer.
* 41,000 will die yearly

Epidemiology cont.
### Estimated New Cases*

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th></th>
<th>Females</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Prostate</td>
<td>240,890</td>
<td>29%</td>
<td>Breast</td>
<td>230,480</td>
</tr>
<tr>
<td>Lung &amp; bronchus</td>
<td>115,060</td>
<td>14%</td>
<td>Lung &amp; bronchus</td>
<td>106,070</td>
</tr>
<tr>
<td>Colon &amp; rectum</td>
<td>71,850</td>
<td>9%</td>
<td>Colon &amp; rectum</td>
<td>69,360</td>
</tr>
<tr>
<td>Urinary bladder</td>
<td>52,020</td>
<td>6%</td>
<td>Uterine corpus</td>
<td>46,470</td>
</tr>
<tr>
<td>Melanoma of the skin</td>
<td>40,010</td>
<td>5%</td>
<td>Thyroid</td>
<td>36,550</td>
</tr>
<tr>
<td>Kidney &amp; renal pelvis</td>
<td>37,120</td>
<td>5%</td>
<td>Non-Hodgkin lymphoma</td>
<td>30,300</td>
</tr>
<tr>
<td>Non-Hodgkin lymphoma</td>
<td>36,060</td>
<td>4%</td>
<td>Melanoma of the skin</td>
<td>30,220</td>
</tr>
<tr>
<td>Oral cavity &amp; pharynx</td>
<td>27,710</td>
<td>3%</td>
<td>Kidney &amp; renal pelvis</td>
<td>23,800</td>
</tr>
<tr>
<td>Leukemia</td>
<td>25,320</td>
<td>3%</td>
<td>Ovary</td>
<td>21,990</td>
</tr>
<tr>
<td>Pancreas</td>
<td>22,050</td>
<td>3%</td>
<td>Pancreas</td>
<td>21,980</td>
</tr>
<tr>
<td><strong>All Sites</strong></td>
<td><strong>822,300</strong></td>
<td><strong>100%</strong></td>
<td><strong>All Sites</strong></td>
<td><strong>774,370</strong></td>
</tr>
</tbody>
</table>

### Estimated Deaths

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th></th>
<th>Females</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lung &amp; bronchus</td>
<td>85,600</td>
<td>28%</td>
<td>Lung &amp; bronchus</td>
<td>71,340</td>
</tr>
<tr>
<td>Prostate</td>
<td>33,720</td>
<td>11%</td>
<td>Breast</td>
<td>39,520</td>
</tr>
<tr>
<td>Colon &amp; rectum</td>
<td>25,250</td>
<td>8%</td>
<td>Colon &amp; rectum</td>
<td>24,130</td>
</tr>
<tr>
<td>Pancreas</td>
<td>19,360</td>
<td>6%</td>
<td>Pancreas</td>
<td>18,300</td>
</tr>
<tr>
<td>Liver &amp; intrahepatic bile duct</td>
<td>13,260</td>
<td>4%</td>
<td>Ovary</td>
<td>15,460</td>
</tr>
<tr>
<td>Leukemia</td>
<td>12,740</td>
<td>4%</td>
<td>Non-Hodgkin lymphoma</td>
<td>9,570</td>
</tr>
<tr>
<td>Esophagus</td>
<td>11,910</td>
<td>4%</td>
<td>Leukemia</td>
<td>9,040</td>
</tr>
<tr>
<td>Urinary bladder</td>
<td>10,670</td>
<td>4%</td>
<td>Uterine Corpus</td>
<td>8,120</td>
</tr>
<tr>
<td>Non-Hodgkin lymphoma</td>
<td>9,750</td>
<td>3%</td>
<td>Liver &amp; intrahepatic bile duct</td>
<td>6,330</td>
</tr>
<tr>
<td>Kidney &amp; renal pelvis</td>
<td>8,270</td>
<td>3%</td>
<td>Brain &amp; other nervous system</td>
<td>5,670</td>
</tr>
<tr>
<td><strong>All Sites</strong></td>
<td><strong>300,430</strong></td>
<td><strong>100%</strong></td>
<td><strong>All Sites</strong></td>
<td><strong>271,520</strong></td>
</tr>
</tbody>
</table>
There sometimes no symptoms of the cancer cells growing.

If there are symptoms they are usually localized. And it depends where the cancer is, how big the tumor is, and if it is affecting the surrounding tissues.

Some different types of symptoms could be
* Fever
* Tiredness
* Weight loss
* Nausea
* Breast Examination
  - once a month, lying down and applying medium pressure to the chest.

* Testicular Examination
  - once a month, after a warm shower, applying medium pressure to the testicles.

* Self Examinations
When cancer is suspected the first thing is to test the obtain and test the tissue this is called a biopsy.

Table 24.4  American Cancer Society Recommendations for Early Detection

<table>
<thead>
<tr>
<th>Test</th>
<th>Sex</th>
<th>Age</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexible sigmoidoscopy</td>
<td>M &amp; F</td>
<td>50 and over</td>
<td>Every 3–5 yr</td>
</tr>
<tr>
<td>Fecal occult blood</td>
<td>M &amp; F</td>
<td>50 and over</td>
<td>Every year</td>
</tr>
<tr>
<td>Digital rectum exam</td>
<td>M &amp; F</td>
<td>40 and over</td>
<td>Every year</td>
</tr>
<tr>
<td>Prostate exam</td>
<td>M</td>
<td>50 and over</td>
<td>Every year</td>
</tr>
<tr>
<td>Prostatic specific antigen</td>
<td>M</td>
<td>50 and over</td>
<td>Every year</td>
</tr>
<tr>
<td>Papanicolaou (Pap) test</td>
<td>F</td>
<td>18 and over</td>
<td>Every year (after three normal exams, may be performed less often)</td>
</tr>
<tr>
<td>Pelvic exam</td>
<td>F</td>
<td>18–40</td>
<td>Every 1–3 yr</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Over 40</td>
<td>Every year</td>
</tr>
<tr>
<td>Endometrial tissue</td>
<td>F</td>
<td>Menopause</td>
<td>Every month</td>
</tr>
<tr>
<td>Breast self-exam</td>
<td>F</td>
<td>20–40</td>
<td>Every 3 yr</td>
</tr>
<tr>
<td>Breast clinical exam</td>
<td>F</td>
<td>20 and over</td>
<td>Every year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Over 40</td>
<td>Every year</td>
</tr>
<tr>
<td>Mammography</td>
<td>F</td>
<td>40–49</td>
<td>Every 1–2 yr</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Over 49</td>
<td>Every year</td>
</tr>
<tr>
<td>Chest X-ray</td>
<td></td>
<td></td>
<td>Not recommended</td>
</tr>
<tr>
<td>Sputum cytology</td>
<td></td>
<td></td>
<td>Not recommended</td>
</tr>
</tbody>
</table>

Note. The American Cancer Society recommends a series of cancer-screening procedures. Although not all experts agree with all aspects of these recommendations, they serve as a useful guide to screen patients for cancer. M = males; F = females. High-risk males (African American males and males with a family history) should begin screening at age 45.
* Biopsy
* Karnofsky Performance Status Scale
  * Function test
  * Fast easy
* Mammograms
* Prostate Exam

Test and Evaluation
* Fatigued
* Depression
* Pain
* Nausea
* Dizziness
* Maybe spread throughout the body.
* Hair loss from medication

Complications
* Surgery
* Radiation Therapy
* Chemotherapy
* Biotherapy
* Damage tissue that impedes exercise.

* Overall physical functioning can be difficult.

* Nausea, dizziness, shortness of breath and chest pains can arise.
Radiation

Increases fatigue over the weeks it is given to the patient.

Radiation dermatitis can be irritated with perspiration.

Chemotherapy

Anemia, fatigue, and nausea.

This means that we need to take into account where the patient is in their treatment.

Effects of Exercise (medications)
Studies show that if patients exercise during cancer therapy:
* Reduce fatigue
* Greater body satisfaction
* Maintenance of body weight
* Improved mood
* Less side effect
* Improved aerobic capacity
* Higher quality of life
Studies also have shown that if cancer patients continue to exercise after their treatments it is more likely they will not have a recurrence.
Goal: maintaining strength, endurance and level of function.

* Are usually deconditioned not only from the disease itself, but the treatment also.
* Check to see in what way the cancer or treatment is affecting the body by checking balance, agility, flexibility, endurance, etc.
* The testing should only last 8 to 12 minutes.
* Medical clearance may be needed.
* Cycle ergometer
* Swimming
* Moderate aerobics
* Any physical activity seems to help.

* Exercise with Breast Cancer
* Swimming
* Brisk Walking
* Indoor stationary cycling
* Low-impact aerobics
* As long as there is no pain they are good to do as they wish

* Exercise with Prostate Cancer
* ECG is not necessary, but a watchful eye on heart rate and proper technique are desirable.

* Resistance training is needed to enhance muscle strength to keep them moving. (machines rather than free weights) Low resistance high reps during treatment.

*Exercise Prescription*
* There is no set frequency, duration, and time because they are unknown.
* There seems to be a relation to more than 10min of exercise and every other day to less fatigue.
* Needs to be flexible to work with many problems.
### TABLE 27.3

**Cancer: Exercise Programming**

<table>
<thead>
<tr>
<th>Modes</th>
<th>Goals</th>
<th>Intensity/Frequency/Duration</th>
<th>Time to goal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aerobic</strong></td>
<td>- Improve/maintain work capacity&lt;br&gt;- Control body weight&lt;br&gt;- Improve mood&lt;br&gt;- Reduce fatigue&lt;br&gt;- Improve quality of life</td>
<td>- Symptom limited; moderate intensity (40-60% VO₂R or HRR)&lt;br&gt;3-5 days/week&lt;br&gt;20-60 min/session</td>
<td></td>
</tr>
<tr>
<td>Large muscle activities (walking, rowing, cycling, water aerobics)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Strength</strong></td>
<td>- Maintain or improve strength in arms, legs, and trunk&lt;br&gt;- Increase maximal voluntary contraction, peak torque, and power</td>
<td>- Symptom-limited intensity&lt;br&gt;40-60% of 1RM&lt;br&gt;2-3 days/week for 20-30 min&lt;br&gt;1-3 sets of 3-5 reps, building to 8-15 reps&lt;br&gt;Add RPE 11-13/20</td>
<td></td>
</tr>
<tr>
<td>Free weights&lt;br&gt;Weight machines&lt;br&gt;Isokinetic machines&lt;br&gt;Resistance bands&lt;br&gt;Circuit training</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Flexibility</strong></td>
<td>- Increase/maintain ROM&lt;br&gt;- Decrease stiffness from disuse</td>
<td>- 20-30 s/stretch&lt;br&gt;2-4 reps/stretch&lt;br&gt;5-7 days/week</td>
<td></td>
</tr>
<tr>
<td>Stretching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Functional</strong></td>
<td>- Maintain as much independence as possible&lt;br&gt;- Return to work&lt;br&gt;- Improve gait&lt;br&gt;- Improve balance</td>
<td>- Daily</td>
<td></td>
</tr>
<tr>
<td>ADLs&lt;br&gt;Gait and balance exercise</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
• Define Cancer
• Epidemiology
• Symptoms
• Self Examinations
• Treatment
• Effects of Exercise
• Exercise Testing
• Exercise Prescription

*Summary and Conclusion*


