Chapter 4 - Engaging in Physical Activity for Health, Fitness, and Performance (PP 85-116)

- 15% Canadian adults meet physical activity recommendations (150 min)
- 7% children and adolescents are sufficiently active (60 min)
  - Children are more active than adolescents
  - Adolescents are more active than adults
  - Males more active than females

Physical Activity - Movements by skeletal muscles (energy expenditure)

3 Types of Physical Activity

1. **Health**
   - If everyone followed the physical activity recommendations, the follow could be prevented:
     - 1/3 of deaths related to coronary heart disease
     - 1/4 of deaths related to stroke and osteoporosis
     - 1/5 of deaths related to colon cancer, high blood pressure, and type 2 diabetes
     - 1/7 of deaths related to breast cancer
   - Only 20.7% are aware of the guidelines
   - Only 5.5% follow the recommendations

2. **Fitness**
   - *Exercise*: planned, structured, repetitive movements to improve or maintain physical fitness
   - *Physical Fitness*: attributes, health - or performance - related
   - *Specific Intensity*: Number of times per week
     - Canada recommends 60 minutes per day
3. **Performance**
   - Increase power, agility, speed, coordination
   - Types:
     - *Plyometrics*: exercises that contract muscles in a certain order to increase power. Can be used to improve body control and the speed at which you change directions.
     - *Intervals training*: Improve speed and cardiorespiratory fitness. Low to high intensity.
   - Safest for those with high level of fitness

Benefits of Regular Physical Activity

Benefits include reduced:

- cardiovascular disease, diabetes, cancer
- Hypertension, obesity, depression
- Osteoporosis, premature death

Improved Cardiorespiratory Endurance

- Improves efficiency of cardiovascular and respiratory systems
  - It allows the heart to pump more blood with each beat, this lowering resting heart rate
  - It improve the ability to take in and distribute oxygen to working muscles
  - It strengthens the muscles responsible for respiration

- Cardiovascular Endurance:
  - Heart, lungs, and blood vessels function efficiently
- *Aerobic Power*:
  - Volume of oxygen consumed by the muscles
- *Graded Exercise Test*:
  - Test of aerobic capacity (peak exertion)
- Reduced Risk of Heart Disease
- Prevention of Hypertension
  - Lowers systolic and diastolic blood pressure
  - Lowers by about 10 mmHg.
- Improved Blood Lipid and Lipoprotein Profile
  - Lowers LDL (Low Density Lipoprotein) and raises HDL (High)

Cardiorespiratory Fitness Programs

- You want to work your heart to 70-90 percent of your maximum heart rate (workload 55-85% of your VO_{2max}) for a continuous length of 20-30 min (3 days per week)
- Determining Exercise *Frequency*
  - More exercise = more benefits
- Determining Exercise *Intensity*
  - Target heart rate: (220-age for males, 226-age for females) x %max
  - Ex: Man = Age 20. Target = (220-20)x0.7=**140** beats per min
- Determining Exercise *Time*
  - 20-30 minutes are needed to induce a training effect (70-90% HR_{max})
- Determining Exercise *Type*
  - The Recovery Recommendation: 18-24 hours rest between exercise

Improved Bone Health

- Weight-bearing and strength-building exercises maintain bone health
- Reduces osteoarthritis (1 in 10 Canadians, and more common in women)
- Reduces osteoporosis (More common in women)

Improved Weight Management

- Direct effect on metabolic rate

Improved Quantity and Quality of Life

- Prevention of Type 2 Diabetes
  - For every 2000 calories of energy expended during leisure-time physical activities,
- Increase Longevity
- Improved Immunity to Disease
  - Physical activity increase our white blood cells (WBC) for about 24 hours

- **Improved Mental Health and Stress Management**
  - Regular vigorous physical activity has been shown to “burn off” the chemical by-products released by our nervous system during it’s normal response to stress

<u>Improving Muscular Strength and Endurance</u>

What Are They?

- Muscular Strength: One repetition maximum (1RM = max force you can produce)
- Muscular Endurance: Duration, without fatigue
- Musculoskeletal Health: the domination of strength, endurance, and flexibility and their influence on various components of health

- One repetition maximum (1 RM): The max amount of weight or resistance that can be lifted/ moved at once
- Hypertrophy: Increased size (girth) of a muscle

Principles of Strength Development
- The Tension Principle: To create sufficient tension within a muscle or group of muscles.
- The Overload Principle: Pushing to max capacity to increase muscle strength greater than what you are accustomed to, capable of creating more tension.
- The Specificity of Training Principle: Are you being specific? (Ex: Weight training, lower body, etc)
- The Recovery Principle: Allow 48 hours for the body to recover from and adapt to the resistance training undertaken.

Types of Muscle Contractions
- Isometric muscle contraction: Force produced without muscle movement
- Concentric muscle contraction: Force produced while shortening the muscle
- Eccentric muscle contraction: Force produced while lengthening the muscle

Methods of Providing Resistance
- Body Weight Resistance
  - No external equipment. Use body as equipment
  - Ex: Sit ups, pull-ups
- Fixed Resistance
  - Fixed weight and resistance.
  - Ex: barbells and dumbbells
- Variable Resistance
  - Alters the resistance on the muscles
  - Ex: exercise machine
- Accommodating Resistance
  - Maintain a constant speed through the range of motion.

Getting Started
- Sufficient tension within a muscle will make it stronger
- Set specific training goals and strategies
- Strength Training
  - Minimum one exercise per major muscle group
  - Intensity should be >60% of IRM
- Muscular Endurance Training
  - Number of repetitions

<u>Improving Your Flexibility</u>
Flexibility: range of motion; amount of movement possible at a joint
- Enhances efficiency of movement

Types of Stretching Exercises
- Flexibility enhanced by controlled stretching of muscles
- Static stretching: Assuming a “stretching” position at the point of tension for 10 to 30 seconds in which there is a slow, gradual lengthening of muscles
  - Recommendation 4-7 times per week

<u>Programs</u>
- **Yoga** - Flexibility, vitality, posture, agility, and coordination
- **Tai Chi** - Combines stretching, balance, coordination, and mediation

- **Pilates** - Flexibility, agility, coordination, strength, economy of motion

Body Composition
- Relative portions of fat and lean tissue
- Parameters:
  - Total body mass
  - Fat mass
  - Fat-free mass
  - Regional fat distribution

Planning Your Physical Fitness Training Program

Identifying Your Physical Fitness Goals
- Determine needs and set goals
- Select appropriate program, and commit to it

Designing Your Physical Fitness Program
- Warm-up and Cool-down
- Cardiorespiratory Endurance
- Resistance Training
- Flexibility

Fitness-Related Injuries

Causes of Fitness-Related Injuries
  - Overuse injuries: cumulative stress on body (overtraining)
  - Traumatic injuries: sudden and violent

Prevention
  - Appropriate footwear (replace regularly)
  - Appropriate protective equipment (must fit well)

Common Overuse Injuries
  - Plantar Fasciitis: inflammation, bottom of foot
  - Shin Splints: pain, front of lower leg
  - Runner's Knee: abnormal movement of kneecap

Treatment
  - RICE: rest, ice, compression, and elevation

Exercising in the Heat
  - Acclimatize to the weather:
    - Avoid dehydration
    - Wear appropriate clothing
    - Use common sense
  - Heat Stress Illnesses:
    - Heat cramps: muscle cramps that occur during or following exercise in warm/hot conditions
    - Heat exhaustion: a heat stress illness caused by significant dehydration resulting from exercise in hot conditions (precursor to heat stroke)
    - Heat stroke: A deadly heat stress illness resulting dehydration and overexertion in hot conditions (43*C in a few minutes)

Exercising in the Cold
  - Hypothermia: potentially fatal, abnormally low core temperature
  - Prevention of Hypothermia:
    - Analyze conditions (e.g., wind, humidity)
    - Use the buddy system
    - Wear appropriate layers
    - Hydrate

Your Movement Journey

- Changes in physical literacy and activity, with age
    - Allows understanding of journey
    - Helps to set new goals

Chapter 6 - Managing Your Weight: Finding a Healthy Balance

Overweight and Obesity

Overweight - weight greater than expected for specific height

Obesity - excessive accumulation of body fat (Increases risk for health problems)

Health Risks Associated with Obesity

- Atherosclerosis, coronary artery disease, hypertension
- Cancer, Type 2 diabetes, gallbladder disease, osteoarthritis

Determining the Right Weight for You

- Body mass index (BMI): weight-to-height ratio
    - BMI = (weight in kg)/(height in m^2)
- Adults' BMI classification
    - Less than 18.5 = underweight
    - 18.5-24.9 = healthy weight
    - >25 = overweight
    - >30 = obese (three classes of obesity)
        - Class I = 30.0 to 34.9 (health risk)
        - Class II = 35.0 to 39.9 (Very high health risk)
        - Class III > 40.0 (Extremely high health risk)
- Women: higher fat than men (genetics)
- Two types of body fat:
    - Essential fat: necessary for normal physiological functioning, such as nerve conduction
    - Storage fat: Insulate, pad, and protect

Assessing Your Body Fat Content

- *Dual-Energy X-Ray Absorptiometry (DEXA):* a method of body composition assessment in which estimates are made of bone mineral content and lean and fat mass.
- *Hydrostatic Weighing*: A method of determining body fat by estimating total body volume from the amount of water displaced when a person is completely submerged.
- *Skin-fold Measurements*: A method of assessing body fat where folds of skin and the underlying fat tissue are measured with skin fold callipers
- *Bioelectrical Impedance Analysis (BIA)*: A technique of body fats assessment in which the resistance to a weak electrical current is measured

Managing Your Weight

Keeping Weight Loss in Perspective

- Long-term loss: difficult, requires support
- Lifelong approach: healthy eating, physical activity

What is a Calorie?

- Measurement: energy from a food
- One kilogram of fat = 9,000 calories

Physical Activity

- Resting metabolic rate (RMR): The energy expenditure of the body while at rest

- Basal metabolic rate (BMR): The energy expenditure of the body under resting conditions, at room temperature.
- Exercise metabolic rate (EMR): The energy expenditure of physical activity
- Thermic effect of food (TEF): The energy require to digest, absorb, transport, metabolize, and store nutrients.

- Recommendations
  - 60 minutes of moderate-intensity activity daily
  - Cardiorespiratory, strength exercises; use large muscle groups

Is Dieting Healthy?

- Concerns of "Dieting"
  - more harmful than helpful to health
  - Long-term, is rarely successful
  - Adverse health conditions (ex. Changes in metabolism)
  - May contribute to development of eating disorders

Improving Your Eating Habits

- turn off distractions while eating (e.g. TV)
- chew food slowly
- only eat when hungry; eat frequently
- make favourite foods inconvenient to eat
- eat breakfast, everyday
- drink water instead of soft drinks

Choosing to eat well

- avoid quick weight-loss programs
- plans with choices (do not sacrifice enjoyment)

Miracle diets

- very low-calorie diets (VLCDs - 400 to 700 cals per day)
- Ketosis: a condition in which the body adapts to prolonged fasting or carbohydrate deprivation by converting body fat to ketones, which can be used as fuel for some brain activity (can be dangerous)

Low – carbohydrate diets

- Remember: different nutrient values amongst carbohydrates

Glycemic load guidelines:

- Choose plants
- Beans, instead of meats
- Eat nuts
- Mix carbs with other foods
- Eat more whole-grain
- Physical activity

Trying to gain weight

- Identify reasons weight gain is difficult
  - Metabolic, hereditary, psychological, etc
- Monitor your physical activity
- Eat and drink more often:
  - Nutrient-dense and high calorie foods
- Try to relax

<u>Risk Factors for Obesity</u>

Heredity and genetic factors

- 250 gene markers have been identified as related to obesity

Body type and genes

- Endomorph, mesomorph and ectomorph
- Children of obese parents: increased risk of obesity

Obesity genes?

- Genetic predisposition: satiety, feeding behaviours

Endocrine influences: the hungry hormones

- <2% of obesity caused by endocrine problems
- adaptive thermogenesis: calories = no weight gain

Hunger, Appetite, and Satiety

- hunger, physiological response; appetite, learned response
- satiety: feeling of fullness

developmental factors

- hyperplasia, an increase in cell number
    - usually only in infancy and puberty
    - increase, with chronic positive energy balance

Hypertrophy, an increase in cell size

- may increase in size at any time

metabolic rates and weight

- influences on basal metabolic rate
    - age; infancy, puberty, pregnancy
    - body composition
    - self-protective situations (e.g., fever, yo-yo dieting)

Setpoint theory: body has a weight at which it is comfortable

Psychosocial factors

- relationship: emotional needs and weight problem
    - uncertain

eating: focal point of people's lives

- major part of our socialization

Eating Cues

- Problems associated with fast food:
    - High fat, calories, sodium, carbohydrates
    - Oversized portions, eaten completely
    - Eating quickly, no recognition of satiety

Dietary myth and misperception

- People eat more than they think
- Obese individuals: less active

Lifestyle

- >85% of Canadians classified as sedentary
- cultural aspects: education system, work life

- Labour-saving devices, reduces activity levels
- Exercise viewed as work
- Need to increase active living

Weight bias

- Negative attitudes harmful to obese individuals
- Can lead to social isolation
- Associated with higher rates of:
    - Depression, suicide, and disordered eating
    - Poorer psychological adjustment

Thinking thin: body image disorders

- Obsession with thinness not a recent phenomenon
- Women pressured for generations to be thin
- Media reinforces thinness as beauty ideal

Body composition - volume and density

Energy IN > Energy OUT

- Gain weight and:

1) Maintaining bodyfat
2) Decreasing bodyfat
3) Increasing bodyfat

Energy IN < Energy OUT

- Lose weight and:

1) Maintaining bodyfat
2) Decreasing bodyfat
3) Increasing bodyfat

Energy IN = Energy OUT

- Maintain weight and:

1) Maintaining bodyfat
2) Decreasing bodyfat
3) Increasing bodyfat

Body image

- how you see yourself, your appearance
- how comfortable you feel about your body

<u>Negative body image:</u>

- distorted perception: discomfort, shame, and anxiety

<u>positive body image:</u>

- true perception of appearance: celebrating uniqueness

Many factors influence body image:

<u>the media and popular culture:</u>

- disconnect between idealized images and typical body

Family, community, and cultural groups
- Parents: enhance r disrupt children's body image.

Physiological and psychological factors
- Possible link: brain's ability to regulate neurotransmitters.

How can you develop a more positive body image?
- Challenge commonly held attitudes in society

The four myths

1) How you look is the most important thing
2) Anyone can slender and attractive (willpower)
3) Extreme dieting: effective weight-loss strategy
4) Appearance is more important than health

Some people develop body image disorders

Body dysmorphic disorders (BDD)
- Obsessively concerned with appearance (distorted view)
- Perceived lack of muscles, facial blemishes, etc.

Social physique anxiety (SPA)
- Disproportionate time fixating on body
- Exercising; ego-centered, self-directed activities
- Eating disorders

Who's at risk?
Many factors: no simple explanation
Potential factors:
- Win social approval
- Gain control of life

Often suffer from other problems
- Clinical depression, alcohol abuse, other addictions

Eating disorder	Criteria
Anorexia Nervosa - Obsessed with food - Self-starvation - Extreme exercising	- Body weight: not normal for age - Fear of gaining weight (becoming fat) - Disturbance in body weight and shape
Bulimia nervosa - binge eating - self- induced vomiting - laxatives - 1-3% of adolescents and young females	- binge eating; behaviour to prevent weight gain - at least once a week for 3 months - body shape and weight influence self-evaluations

Binge eating disorder (BED) - binge eat but do not purge - no abnormal attitudes: dieting; body weight, shape	- associated with 3+ of the following: continued ▪ eating much more rapidly than normal. ▪ eating until feeling uncomfortably full. ▪ Eating large amounts (not hungry) ▪ Eating alone due to embarrassment (quantity) ▪ Distress regarding binge eating
Eating disorder not otherwise specified (ED-NOS) - unclear diagnosis: eating, body image problems	- purge after normal eating - chew food repeatedly then spits it out - binge eating and purging (not regularly)

Treatments for eating disorders:
- without treatment, about 20% will die
- with treatment, recovery rates from 44-76%
- therapy: psychological, social, environmental, physiological

treating eating disorders:
- Early diagnosis, treatment: best predictors (success)
- Multidimensional approach involving family and friends
- Attention: usually from someone showing concern
- May require hospitalization and psychotherapy
- New ways: handle stress, control life

Helping someone with an eating disorder
- Be patient and knowledgeable
- Be compassionate and encouraging
- Be nonjudgmental
- Take care of yourself
- Do not take on role of therapist

Conversation guide: focus on feelings and relationships

Anorexia athletica:
Compulsive exercising and control weight = power, control, self-respect
- Can lead to guilt, anxiety, and/or depression, if no exercise

Symptoms include:
- Self-worth based on performance
- Excessive exercise (fanatic about weight, diet)

- Exercise taking time from work, school, relationships.
- Injuries: joints, connective tissues, bones, heart

Muscle dysmorphia:
- Man believes body insufficiently lean (muscular)
- Comparing to others; checking mirror; camouflaging
- Individual likely to use steroids, supplements

Eating Disorders

Disordered Eating
- Abnormal eating behaviours to achieve lower weight
- *Not diagnosed clinically*
- Compulsive eating, habitual dieting

Eating Disorder
- Severe disturbances in body image, eating
  - Abnormal eating: efforts to control weight
  - Abnormal attitudes: body weight and shape

Who is as Risk?
- Many factors: no simple explanation
- Potential factors:
  - Win social approval
  - Gain control of life
- Often suffer from other problems:
  - Clinical depression
  - Alcohol abuse
  - Other addictions

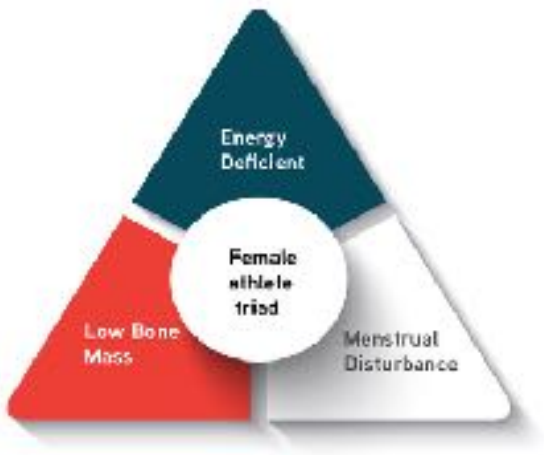
Type	Description	Criteria
Anorexia Nervosa	- Obsessed with food, self-starvation, extreme exercising - Medical Problems: bones, muscles, body systems	- Body Weight: not normal for age, height - Fear of gaining weight, becoming fat - Disturbance in body weight and shape
Bulimia Nervosa	- Binge eating then purging - Self-induced vomiting, laxatives - 1-3% of adolescents and young females	- Binge eating; behaviour to prevent weight gain (at least once a week for 3 months) - Body shape and weight influence self-evaluation

Type	Description	Criteria
BED - Binge Eating Disorder	- Binge eat but do not purge - No abnormal attitudes: dieting, body weight, shape	3+ of the following: - Eating much more rapidly - Eating until feeling uncomfortably full - Eating large amounts, when not hungry - Eating alone due to embarrassment (quantity) - Feeling disgusted, depressed, guilty after overeating - Binge eating 1+ times a week - Binge eating, not associated with compensatory behaviour
EDNOS - Eating Disorder Not Otherwise Specified	- Unclear diagnosis: eating, body image problems	- Purging after normal eating - Chew food repeatedly then spit it out - Binge eating and purging (not regularly)

Treatment for Eating Disorders
- Without treatment, about 20% will die
- With treatment, recovery rates from 44-76%
- Therapy: Psychological, social, environmental, physiological
- Early diagnosis and treatment increase success
- *Multidimensional approach* - involves family and friends
- May require hospitalization and psychotherapy
- Find new ways to handle stress, and control life

How to Help Someone with an Eating Disorder
- Be patient and knowledgable
- Be compassionate and encouraging
- Be nonjudgmental
- *Conversation Guide* - focus on feelings and relationships

<u>Exercise Disorders</u>



	Description	Criteria
Anorexia Athletica	- Compulsive exercising and control weight	- Self-worth based on performance - Excessive exercise (fanatic about weight, diet)
Muscle Dysmorphia	- Man believes body insufficiently lean (muscular)	- Compares self to others - Obsessed with image - Likely to use steroids, supplements

Chapter 12 - Reducing Risk for Cardiovascular Disease and Cancer

Cardiovascular Disease (CVD)
- Leading cause of death world-wide
- 80% of premature deaths, prevented through:
  - Healthy dietary Intake
  - Regular Physical Activity
  - Avoiding Tobacco
  - Maintaining Weight

Types of Cardiovascular Disease

Type	Description	Causes
Atherosclerosis	- Narrowed, hardened arteries - Fatty substances (plaque) lines the arteries - Can be partially or totally blocked blood flow	- Fluctuations in blood pressure - Elevated blood cholesterol, triglycerides, glucose - Cigarette smoking
Coronary Heart Disease (CHD)	- Coronary Thrombosis - Blood flow impeded - Collateral Circulation - Damaged heart may heal - Ischemia - Insufficient blood flow, decrease oxygen - Angina Pectoris: Severe chest pain (reduced oxygen) - Myocardial Infarction (MI): Heart attack	
Stroke	- Blood to brain: severely reduced, cut-off - Transient Ischemic Attack (TIA)	- Thrombus (blood clot) - Embolus (a wandering clot) - Aneurysm (weakened vessel = bulge or burst)
Hypertension	- Risk factor for CHD - Chronic high blood pressure (140/90 mg, or higher) - Systolic pressure and diastolic pressure - Essential (most common) or secondary hypertension	

Type	Description	Causes
Other	- Arrhythmia: irregular heartbeat - Congestive Heart Failure: damaged, overworked heart - Congestive Heart Disease: Present at Birth - Rheumatic Heart Disease: Streptococcal Infection	

Preventing Cardiovascular Diseases:

Risks you can Control:
- High blood pressure
- Blood fat and cholesterol levels
- Cigarette smoking
- Physical Inactivity

Risks you cannot Control:
- Heredity
- Sex
- Age
- Ethnicity

Women and Cardiovascular Disease
- Generally more likely after menopause. Unless you have the following risk factors:
  - Diabetes
  - High blood pressure
  - Kidney Disease
  - Genetic Predisposition to high cholesterol
  - Family History, oral contraceptive use, smoking

Recognizing Heart Disease in Women
- Chest discomfort rather than chest pain
- Heart attack symptoms in women:
  - Pain in neck, jaw, or arms
  - Heaviness in shoulders, back, stomach
  - Out of breath, tired, sweating, nausea

Reasons why signs may be overlooked:
- More vague symptoms
- Sex-bias in health care delivery
- Women decline procedures more than men
- Less aggressive treatment after heart attack
- Older age

Treatments Against Heart Disease
- Angioplasty vs. Bypass surgery
  - Coronary Bypass: less invasive treatments better?
  - Angioplasty: fewer risks, but may need repeating
  - Drugs: beta blockers, calcium channel blockers, cholesterol-lowering medications, aspirin
- Thrombolysis
  - Injection: dissolves clots, restores blood flow

Cancer

Facts:
- 24% women, 29% men will die
- Lung cancer: causes most cancer deaths
- Factors: age, sex, ethnicity, socioeconomic, lifestyle

What is Cancer?
- Uncontrolled growth, spread of abnormal cells
    - Malignant and Benign tumours
    - Biopsy
    - Metastasis

What Causes Cancer?
- Majority are preventable (health lifestyles, environments)
- External and internal factors
- Theories:
    - Spontaneous errors during cell reproduction
    - External agents intimate growth (ex. Carcinogens)
    - Oncogenes: cancer-causing genes (on chromosomes)

Risks for Cancer
- Lifestyle
    - Most are age 55+
- Smoking
    - Leading cause of preventable death, worldwide (1 in 5 deaths)
- Obesity
    - More common among obese: risk increases, as BMI increases
- Biological Factors
    - Genetic predisposition
- Occupation and Environment Factors
    - Workplace; carcinogens (ex. Asbestos)
- Social and Psychological Factors
    - Negative emotions, stress, poor sleep, poor diet, depression
- Chemicals in Food
    - Pesticide and herbicide residues
- Infectious Diseases
    - Chronic inflammation, suppressed immunity, chronic stimulation
- HBV, HCV, and Liver Cancer
- HPV and Cervical Cancer
- Medical Factors
    - Estrogen replacement therapy
    - Chemotherapy: increase risk of certain cancers

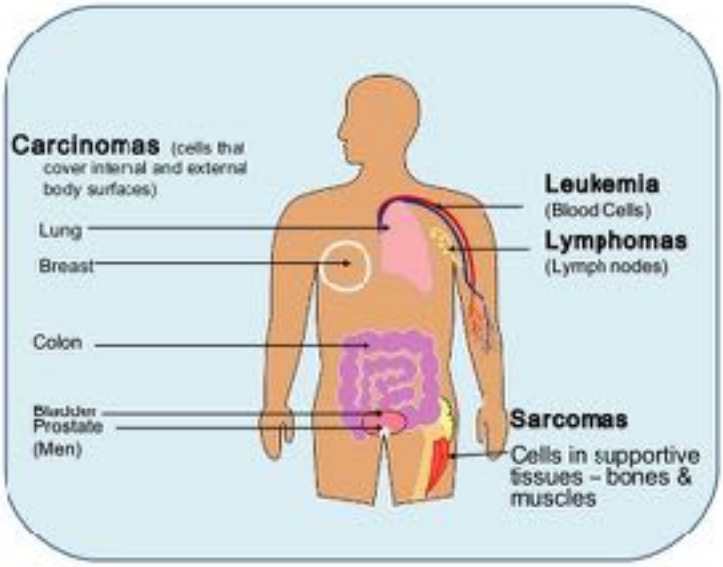
Types of Cancer

Classifications:
- Carcinomas: epithelial tissues
    - Breast, lung, intestines, skin, mouth
- Sarcomas: mesodermal (middles) layer tissues
    - bones, muscles, connective tissue
- Lymphomas: lymphatic system
- Leukaemia: blood-forming parts

Type	Symptoms	Prevention	Treatment
Lung Cancer - Only 15% live 5 years beyond diagnosis	- Persistent Cough - Chest Pain - Recurrent Pneumonia - Bronchitis	- Exposure to smoke, industrial substances, radiation - 90% of lung cancers avoided by not smoking	N/A
Breast Cancer - 1 in 9 women - Risk increases with age - Most common for women	- Persistent Breast Changes: - Lump - Thickening - Swelling - Changed Shape/size - Redness	- Physical Activity - Regular self-examination - Mammography	- Mastectomies - Lumpectomy - Chemotherapy - Radiation
Colorectal Cancers - Higher risk: people 40+ with family history	- Bloody Rectum/Stool - Bowel Changes	N/A	N/A
Prostate Cancer - Most Common for men - Risk increase with age	- Weak, interrupted urine flow - Other urine-related difficulties		
Skin Cancer - Most do not die (common)	- Unusual skin conditions - ABCDE warning signs of melanoma - **A - Asymmetry** (bad=not symmetrical) - **B - Borders** (bad=uneven edges) - **C - Colour** (bad=variety of colours) - **D - Diameter** (bad=larger diameter) - **E - Evolving** (bad=looks different over time)	- Linked to sunlight exposure (limit exposure or use protection)	

Facing Cancer
- Surgery to remove tumour
- Radiotherapy (radiation)
- Chemotherapy (use of drugs)

Life after Cancer
- Heightened public awareness and improved prognosis
- Less threat and less isolation
- Assistance is more readily available



- Research Improvements

<u>Diabetes</u>

Types:

- Type 1 Diabetes: Insulin Dependent
  - Autoimmune disease - pancreas does not produce insulin
- Type 2 Diabetes: Non-Insulin Depended (used to be called Adult on-set)
  - 90-95% of all diabetes cases
- Gestational Diabetes: During Pregnancy
  - Increases risk of developing type 2 diabetes within 5-10 years of giving birth

Understanding the Development of Type 2 Diabetes

- Pancreatic insulin-producing cells overworked
- Overabundance of free fatty acids
- Pre-diabetes can lead to type 2 diabetes
  - Plays role in metabolic syndrome (MetS)
    - Linked to overweight and obesity
- Non-modifiable risk factors:
  - Increased Age
  - Ethnicity
  - Genetic
  - Biological Factors
- Modifiable risk factors:
  - Body weight, diet, physical activity, sleep
  - Level of Stress, BMI of 25+
  - Waistline: 102cm+ males, and 89cm+ females

Blood Tests to Diagnose and Monitor Diabetes

- Fasting Plasma Glucose test (FPG)
  - Patient fasts overnight, blood tested (glucose)
- Oral Glucose Tolerance test (OGTT)
  - Patient drink liquid: concentrated glucose
  - 2 hours later, blood tested for glucose

Complications Associated with Diabetes
- Cardiovascular disease
- Kidney disease
- Amputations
- Eye disease and blindness
- Flu and pneumonia-related deaths
- Pregnancy complications

Lifestyle Changes Can Improve Glucose Levels
- Weight Loss
    - Recommended: lose 5 to 10% of current weight
- Eat Well
    - Whole grains, high-fibre foods, fatty fish
- Increasing Physical Fitness
    - 30 minutes of activity, 5 days a week

Insulin Injections May Be Necessary
- Essential for Type 1 diabetics
- For some Type 2 diabetics:
    - When glucose is uncontrollable with other treatments