Bioeletrical signals

a grp of cells	nerve & muscle cells
cardiac muscle	exert electrical signals naturally
cell membrane potential - stimuli *(electric)* - excited - pass threshold - action potential - generate electric field	
EMG, EOG, ERG	

Bio-acoustic signals

sounds from the human body as it functions, giving information of the body's inner condition	lung *(breathing)*, heart *(blood flow)*, bowel, joint *(bone cracking)*
noninvasive and easy way of examination	
sound sensor apparatus	receive the bio-acoustic signals

Biomechanical signals

movement	motion & displacement signals, pressure & flow system
skeletal muscles	movement of the limbs
chest wall	movement of chest - respiratory activity - examine rib cage injury

Bio-optic signals

light	change in optical properties
alive cells = emit light energy	dead cells = no emit light energy
blood oxygenation	measure the transmitted light from cells at different wavelengths
	reflection or pulse rate by the change in skin color

Biochemical signals

measurement of the chemicals in the body	directly from the living cells or in the form of samples
	CO_2, O_2, ion conc, hormones, signaling & receptor pathways
	signaling interactions & processing cellular information
checks the ability of cells to recognize and respond to the changes in their environment	homeostasis, immunity, repair, development
error leads to disease	cancer, autoimmunity, diabetes

Bio-magnetic signal

weak magnetic fields	
specifically brain, lung, heart	other organs also produce - but too weak - these organs work nonstop - slightly more stronger magnetic field
measurement taken in a magnetic shielded room	exclude *most* external disturbances
detector called SQUID	superconducting quantum interference device

Bio-impedence signals

impedance = resistance
implication of weak electrical current - travel thru the cells and tissue - measure the voltage drop generated = impedance of the body
measure body composition