

IV.5 Sounds and Murmurs

Introduction:

Impulses and pulses are mechanical events detected and interpreted by our relatively coarse tactile sensory system. Auditory sensation and interpretation is far more sensitive and

Unfortunately auscultation ~~is~~ allows more extensive examination of the same basic phenomena that we attempt to palpate but frequently cannot. Unfortunately both generation, transmission and detection of sounds and interpretation of sound is complex. However a properly used stethoscope plus palpation + observation can not only identify the ^{majority} of ~~cardiovascular~~ problems but also assess ^{their} stage and relegate the laboratory machines to their proper purpose; confirmation and measurement. quantitation.

This course is focussed on clinical cardiology but a few words about vibration, sound and hearing are appropriate. As used here ~~mechanical vibration~~ is ~~movement~~ ^{motion} in oscillation in solids and liquids, such as blood and the chest ~~whether we can hear or feel them~~ ^{in the frequency range} that can be felt and sound is oscillation in a frequency range that can be heard. This is illustrated in Fig 4. Vibrate Whether

1. Precordial impulses are ^{examples of} very low frequency vibration. motion.
2. Sound oscillation must be converted to movement of air as to be heard, by the

they are felt or heard or detected at all depends on their frequency and amplitude.

Hearing begins at 15-17 Hz and ~~over~~ becomes increasingly sensitive to

Palpation is sensitive to large, ^{relatively} slow motion while hearing is orders of magnitude more sensitive to higher frequencies ~~great~~ above 15-17 cycles/sec. Occasionally ~~&~~ we can feel ^{and} ~~or~~ hear the same phenomena such as a thrill in aortic stenosis but more and sometimes the