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Look and listen

Ever wonder what a muscle sounds like when it moves? Or what kind of electrical signals stimulate your heart to beat? Well, here's a simple way to listen in on your own body's electrical communications.

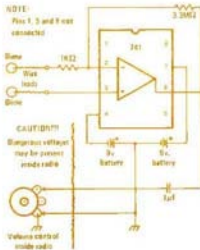
The heart of the system is a 741 op-amp, connected to provide an amplifier gain of about 300,000. The body pickups are ordinary ten-cent pieces—dimes—to which flexible wire leads have been soldered. The output of the op-amp is connected through a 0.1 mfd capacitor to an audio amplifier to complete the system.

If you have an audio system handy, you can simply connect the output of the 741 to an auxiliary input on your amplifier. However, you can make a portable system by

using a battery-powered transistor radio as your audio amplifier. Just connect the 741 output to the *hot* side of the radio's volume control. This is the contact opposite the one connected to chassis ground. Then find a spot on the tuning dial where no radio signal is present. Turn up the volume and you're in business.

When listening in on your body, placement of the electrodes is very important. Generally, the dimes should be placed about four inches apart across the muscle to be listened to. As the muscle contracts, you'll hear a static-like crackle.

You can hear your heart's electrical signals by placing your dime pickups about five inches apart, one on each side of the heart. The sound you'll hear is very much like that



heard in a stethoscope, but is electrical rather than acoustic.