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**The homework should cover "the parts/regions/zones of a sarcomere that are changed and unchanged in contraction of a muscle cell".**

The H zone Is basically this entire region that is found on the single sarcomere and the H zone only contains the thick filaments and notice that it doesn’t actually contain the entire thick filament inside the H zone it only contains the part that does not overlap With the thin filaments so The H zone is the region of the sarcomere that only contains the thick filament , then we got the I band, the I bad is a region that stretches not over a single sarcomere but over 2 sarcomeres and it only contains the thin filament and it extends over to sarcomeres and not over a single sarcomere as the H zone dose and the A band dose, the A band actually contains all the thick filament it’s also involves a portion of the thin filament so the A band is the region that contain all the thick filaments in their entire length, the z line on. 1 and 2 are basically the boundary lines for the sarcomere and it gives skeletal muscle as well as cardiac muscle stripe look because of these z lines, so the process will be like:

• Myosin heads attached to actin to the thin filament and when they attach the basically contract.

• When they contract they bring the thin filaments close to one another and we have overlap taking place but there is no change on the thick filament.

• The z lines will become closer together.

• The I band will also decrease in size as well as the H zone will decrease in size.

• The A band won't change because the length of the thick filament doesn’t change when the contraction takes place.

the region I have some kind of specificity because it has to be very unique in many ways, such as places of connection and contact.

Calcium affects the muscle, affecting contraction and relaxation as well.

In terms of contractility, calcium affects the signal that propagates by controlling and regulating muscle contractions

While when the muscle is relaxed, you need to get rid of calcium, and that is by returning it to the sarcoplasmic reticulum by the pump, and thus ridding the muscle of calcium.