

Interrupted Electrophoresis for Type III Collagen

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BACKGROUND:

Quantification of the type III collagen can be achieved by interrupted electrophoreses. Type I collagen and type III collagen are very similar molecules. They have similar molecular weights and structure. However, type III collagen contains two disulfide intramolecular bonds within the helical region. The disulfide bonds are not present in type I collagen. This method exploits the disulfide bonds to separate type III collagen from type I collagen on SDS polyacrylamide gels. Unreduced type III collagen, analyzed by SDS-PAGE, will co-migrate with the type 1 gamma band. If the sample is reduced, the type III collagen will co-migrate with alpha 1 type I band.

When the unreduced sample is allowed to migrate into a gel for a short period of time, and then is reduced in the gel, the type III collagen migrates between the alpha bands and the beta bands. This effectively separates the type III collagen from type I collagen.

