sity for rigid controls in the use of peroxidase as a vascular tracer, especially in the rat, since both histamine and serotonin affect not only permeability but numerous other biological phenomena.

Summary. Intradermal, intraperitoneal and intravenous injections of horseradish peroxidase solutions induce increased vascular permeability in rats. The vascular leakage is confined to venules, is of short duration, can be inhibited by a combination of histamine and serotonin antagonists and is associated with mast cell degranulation. This phenomenon occurs also in the guinea pig but is minimal or non-existent in the mouse.

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Effect of Tension on Lysis of Collagen.* (32505)

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the lysis of collagen or elastin by endogenous or exogenous enzymes is of interest in periodontology, where tensions caused by faulty occlusion are associated with the breakdown of the collagenous supporting tissues of the teeth. Reasons for believing that such an effect may occur are found in the reports that stretching modifies mloecular adsorption on rubber(1) or collagen(2), that mechanical extension denatures the collagen helix and that denatured collagen fibers(3) are digested more rapidly by trypsin as heavier loads are put on them(4). Since there does not seem to be any information on the effects of tension on the enzymatic breakdown of undenatured collagen, we put the matter to test.

To provide undenatured collagen fresh bovine Achilles tendon was processed by the method of Einbinder and Schubert(5) as modified by Mandl *et al*(6). That this material was suitable for our purpose is indicated by triplicate estimates of available hydroxy proline (Leach(7)) on 5 samples of our collagen and commercial undenatured collagen (Sigma). After 48-hour hydrolysis at 100°C in 6M HCl the mean amounts of hydroxy proline were, respectively, 1308 ± 161 and 1397 ± 174 μg/100 mg. In addition, our collagen, even when shredded, was less rapidly broken down than the commercial undenatured collagen when incubated with 200 μg/ml collagenase in pH 7 Tris buffer (Fig. 1).

The possibility that tension might accelerate

In testing the effect of tension on collagen breakdown pieces of processed Achilles tendon were divided into matched strips and exposed to the action of collagenase in either a stretched or relaxed state. To do this, tendon strips were passed under a stainless steel hook fixed in the base of a plastic test tube and the ends sutured with surgical silk, which, in turn, was attached over a pulley to a 250

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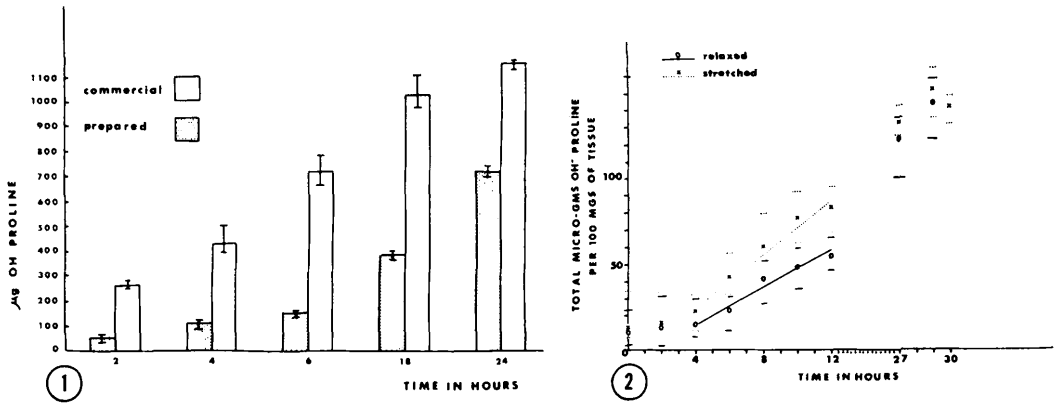

FIG. 1. Comparative release of hydroxy proline from prepared collagen and commercial undenatured collagen on incubation with collagenase.
FIG. 2. Hydroxy proline release from stretched and relaxed bovine tendon.

g weight, which produced the tension. The silk of the control collagen loop was tied loosely to suspend it in a relaxed position. Twenty-five milliliters of a solution containing 200 μg per ml of collagenase (Cal Biochem) adjusted to pH 7 Tris buffer, was added to each tube and incubated at 35°C. To measure the breakdown of collagen 1 ml samples of the enzyme solution were withdrawn periodically and their content of hydroxy proline determined by the method of Leach(7), using a Bausch and Lomb colorimeter with a 560 mμ filter. The results of 5 pairs of runs are given in Fig. 2. In all instances there was more rapid breakdown of the stretched tendons. The hydroxy proline release from the stretched tendons during the first 12 hours was significantly ($t = 4.65$) greater than from the relaxed ones, but after 48 hours this difference had disappeared.

Our findings justify suggesting that traumatic occlusion may speed up the destruction of the collagenous supporting structures of the tooth by making them more susceptible to the action of enzymes. Possibly like reactions occur in other arthropathies.

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Hypergammaglobulinemia in Experimental Liver Injury. (32506)

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Chronic liver injury in both experimental animals and man is characterized by a significant increase in serum gamma globulin. The degree of hypergammaglobulinemia is related to the number of gamma globulin producing cells in the bone marrow(1), lymph nodes(2) and liver(3). It has been suggested that reactivity of these cells is a major determinant of the level of serum gamma globulin, however, the relationship of fixed cells in the liver to gamma globulin production has not been established. The present investigation