rise after 2 weeks on the high carbohydrate diet. While these results cannot be related directly to human atherosclerosis we feel that the obese mouse should receive future consideration. The hyperphagia and increased body weight of obese mice may be essential for the induction of atherosclerosis over a short period of time despite the fact that their physical activity appeared to be normal. These data suggest that refined sugar and white flour play some role in the development of atherosclerosis.

Résumé. Des souris mâles obèses nourries ad libitum avec 50% de céréales, 25% de farine blanche, et 25% de sucrose ont présenté une augmentation en cholestérol de sérum 2,7 fois plus grande que celle des animaux nourris seulement de céréales. Des dépôts de matières grasses ont été trouvés dans la média aortique.

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Saliva Viscosity Reflects the Time of Ovulation

Our previous work in women[1] suggests that we can detect the fertile period by measuring the saliva glucose levels. The appearance of the Dextrostix blue color indicative of saliva glucose correlated well with ovulatory pain. The amounts of saliva glucose (depth of blue color) were greatest at the time of ovulation and faded away within a few days depending upon the glucose levels reached by a particular woman. In a few women, the blue color was present a day or so before our estimated time of ovulation. Furthermore, ovulation altered the pattern of mesothelial cells and polymorphonuclear leukocytes in peritoneal fluid in such a manner that we could identify the stages of the menstrual cycle. The proportion of mesothelial cells was lowest at ovulation whereas the proportion of polymorphonuclear leukocytes was maximum. Larger than normal amounts of fluid (2 to 8 ml) were aspirated immediately after what we interpreted as ovulation[2]. Following these studies, we have related urinary protein levels with ovulation[3]. Urinary protein increased at ovulation but urinary pH and glucose values remained unchanged throughout the cycle. These data correlate well with 'spinnbarkeit' and vaginal smear tests.

During ovulation the follicular contents of the ovary empty hormones, carbohydrates and protein into the peritoneal cavity which are absorbed into the blood and become deposited into the saliva. The present study attempts to correlate the relative saliva viscosity with basal body temperature in relation to the time of ovulation which will be compared with previous work.

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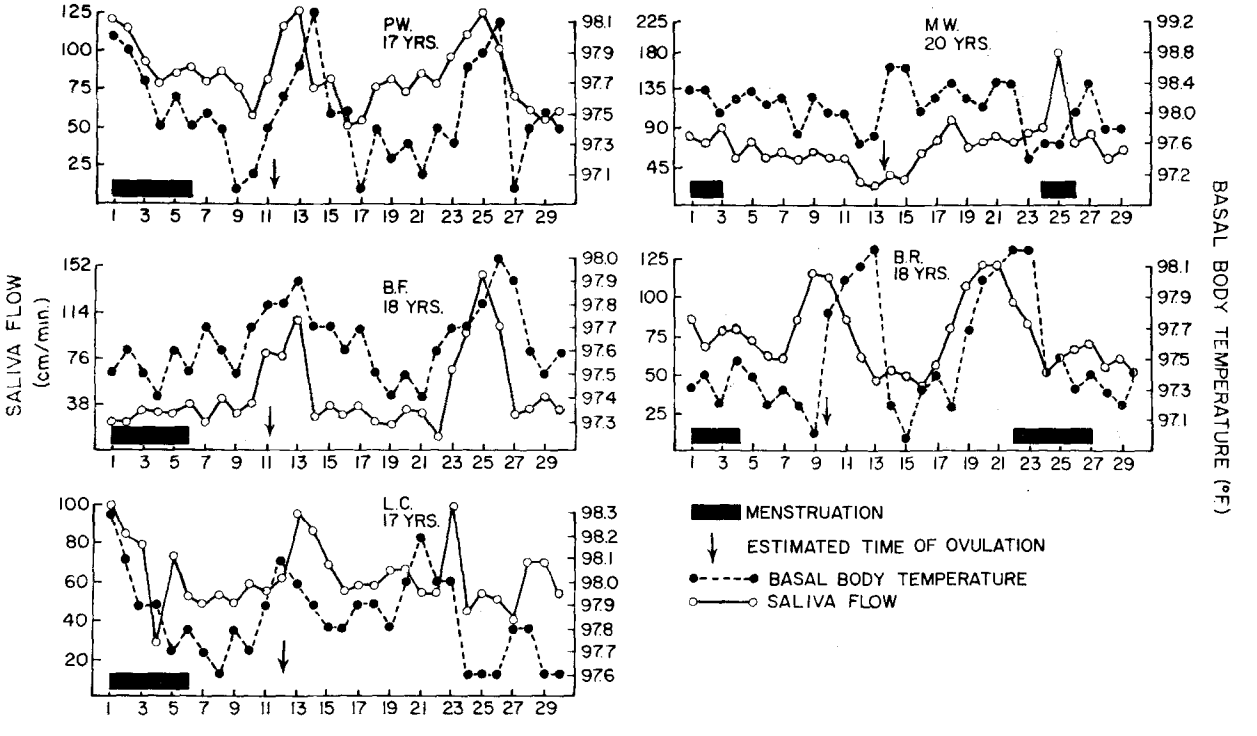

Saliva flow reflects the time of ovulation.

Upon waking each morning, 15 menstrual women (ages 17–20 years) recorded their basal body temperature and placed a small amount of saliva (0.15 ml) at the top of a 45° inclined plane covered with wax paper. For 29 days each woman recorded the saliva flow in cm per min and oral temperature in °F. All women were asked by us to identify each day of menstruation and to indicate the days in which they felt abdominal pain. As far as we know, these women were healthy and had normal menstrual cycles.

The Figure shows a typical relationship between saliva flow and basal body temperature of 5 out of the 15 women which appears to reflect the time of ovulation. Ovulatory pain was also recorded as an aid in determining the ovulation time. The increase in saliva flow parallels basal body temperature from menstruation to the estimated time of ovulation and can be taken as the estrogenic phase whereas the subsequent saliva flow data seems to mimic the progestational phase. The estrogenic peaks of ovulation and corpus lutea are recorded in all 5 women so that saliva viscosity was altered in a characteristic manner by menstruation. In an attempt to correlate these data with previous work, two women (B.F. and L.C.) measured their daily saliva glucose by the Dextrostix blue color. A blue color was recorded each day between day 10 to 13 for B.F. and between day 10 to day 15 for L.C. This agrees with our estimated time of ovulation obtained by saliva flow, basal body temperature and ovulation pain. Our previous work indicates that at this time the proportion of mesothelial cells drop to a minimum whereas polymorphonuclear leukocytes elevate to a maximum in peritoneal fluid[2]. Urinary protein levels become elevated at the time of ovulation[3]. We feel that saliva viscosity can be used as an aid to distinguish the various phases of the menstrual cycle by women and to point out the time of fertility.

Résumé. Chez les femmes la viscosité de la salive mise en relation avec la température du corps révèle le temps de l'ovulation aussi bien que les phases variées du cycle menstrual.

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The Effect of Intraluminal Hydrostatic Pressure on Intestinal Absorption in vivo

In view of the widespread use of perfusion techniques for the quantification of intestinal absorption in vivo, it is surprizing that such little attention has been paid to the influence of intraluminal hydrostatic pressure on the parameters involved. Only an infinitesimal proportion of publications specify the pressure to which the intestine was subjected, and moreover in a recent review of perfusion techniques, experimental and clinical, the factor was not even mentioned[1]. The present study indicates that the intraluminal pressure is a sensitive parameter which plays a significant role in the magnitude of the absorption obtained.

Methods. The experiments were performed on mongrel dogs fasted for 24 h and anaesthetized with pentobarbital. An ileal loop, 20–30 cm in length, was tied at both ends without interruption of any blood supply. Cannulae, of diameter 5 mm, were inserted into small incisions in the anti-mesenteric border at each end. The perfusion fluid was passed through the intestinal lumen by means of a totally occlusive pump, and was returned to a reservoir for recirculation. The level of the aperture of the outflow tube with relation to the intestine was changed at will to produce the variations in hydrostatic pressure. The flow rate of the pump was always 3.3 ml/min. Each perfusion lasted for 30 min, after which the intestine was carefully drained of all liquid, the level of the outflow tube was changed, and the perfusion was re-started at another pressure. Generally, 4 different pressures were employed for each loop. After the final perfusion period, the experimental loop was excised and weighed. Samples of the tissue were desiccated overnight at 110 °C so that the total dry weight of the experimental loop could be computed. The absorption was expressed per g of dry tissue and per h. In some experiments, the viability of the mucosa of the perfused loop was tested in vitro and compared with that of a contiguous control loop by determination of its capacity to absorb labelled phenylalanine or β-methyl-glucoside, according to previously published techniques[2].

Table I. Influence of hydrostatic pressure on the absorption of water by the perfused dog intestine in vivo

Pressure (cm of water)	Absorption (ml/g dry wt./h)
0	3.82 ± 0.53
10	6.06 ± 0.68
20	6.96 ± 0.89
30	6.80 ± 0.70
$D_{0.05}$	0.68
$D_{0.01}$	0.90
$D_{0.001}$	1.20

Results are the means of 11 experiments. Statistical analysis was performed by a random-block analysis of variance, each animal providing 1 block, since the same loop was used for all studies. The values of '*D*', the least significant difference between means at a given significance level (as indicated by the subscript), were extracted from this analysis.

The perfusion fluid consisted of Krebs bicarbonate buffer containing 0.2% glucose. Water absorption was assessed simply by noting the decrease in volume of the perfusate, whilst sodium, potassium, chloride and glucose concentrations were determined before and after the perfusion, using flame photometry, titration and glucose oxidase methods respectively. Absorption of the solutes was computed simply from the amounts perfused and the amounts recovered. Statistical evaluation was always performed by random-block analysis of variance, since the same loop was used for all determinations.

Results. The absorption of water by the perfused dog ratestine was doubled when the intraluminal pressure was inised from 0 to 10 cm of water, and a smaller but still

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