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## Effects of some fatty acids on gallbladder function

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Prostaglandins are known to have actions both on fluid transport and on smooth muscle of the gallbladder (Morton, Saverymuttu & Wood, 1974). We have now investigated the effects of other fatty acids on gallbladder function.

*In vitro* experiments with intact gallbladders taken from male guinea-pigs showed that arachidonic acid, a known prostaglandin precursor, inhibited fluid transport, in a dose-dependent manner, within 30 min of serosal application in the concentration range 10-200  $\mu$ M. Inhibition was preceded by a transient phase of enhanced fluid loss that was concurrent with a rise in intraluminal pressure; these last two effects probably being related (Morton, Saverymuttu & Wood, 1975).

Since these actions of arachidonic acid are seen with somewhat lower concentrations of prostaglandins of the E or F series (Morton, *et al.*, 1974) the possibility of conversion must be considered. Indomethacin (1  $\mu$ M) was shown to antagonize the actions of arachidonic acid but, in contrast, to have little effect on those of ricinoleic acid, a fatty acid not thought to be converted to prostaglandin, although found here to have properties and potency similar to arachidonic acid when tested on the gallbladder.

These experiments suggest that, although

arachidonic acid and ricinoleic acid have similar actions on gallbladder fluid transport and smooth muscle, the former owes some of its potency to conversion to prostaglandin. This is in agreement with the finding that the spasmogenic action of arachidonic acid on gallbladder strips is antagonized by indomethacin (Andersson, Hedner & Persson, 1974).

In view of similarities in the transport systems, these findings may also throw light on gastrointestinal function. It is well known, for instance, that ricinoleic acid has a pronounced cathartic action, although it is uncertain whether this is due to effects on fluid transport or on smooth muscle (Fingl, 1970).

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