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Maximal activities of glutaminase and some enzymes of glycolysis and ketone body utilization and rates of utilization of glutamine, glucose and ketone bodies by intestinal mucosa after burn injury.

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Abstract

1. The effects of burn injury (33 per cent of body surface area) on the activities of key enzymes in the metabolism of glucose, glutamine and ketone bodies in the epithelial cells of the small intestine and the rates of utilization of glucose, glutamine and ketone bodies by isolated enterocytes have been investigated. 2. Burn injury decreased the maximal activities of hexokinase and 6-phosphofructokinase and increased those of glucose 6-phosphatase plus fructose bisphosphatase (in duodenum, jejunum and ileum) over the first 5 days post-injury. 3. After injury there are decreases in the rates of glucose utilization and lactate formation by incubated enterocytes. 4. The maximal activities of citrate synthase and oxoglutarate dehydrogenase were increased during the first 5 days post-injury, whereas the ketone-body-utilizing enzymes were unchanged. 5. An increase in the maximal activity of phosphate-dependent glutaminase was observed during the whole of the post-injury period studied (20 days). 6. After burn injury there is an increased rate of glutamine utilization and increased rates of formation of glutamate and alanine by incubated enterocytes