

100 g protein		1,000 mmol NH_4^+		1,000 mmol HCO_3^-		20 mmol H_2SO_4	
		40	960	960	40		20
Liver		40 Glutamine	480 Urea		20	$\text{SO}_4^{--} + 40$	CO_2
Urine		40 NH_4^+	480 Urea				
Acidosis		↑ ↑ ↑	↓				
Alkalosis		↑	↓				
Acidosis	Periportal		↓		Perivenous		↑
	• Urea synthesis		↓		• Glutamine synthesis		
	• Glutamine degradation		↓		= Liver: glutamine-producing		
	• Consumption of HCO_3^-		↓				
Alkalosis			↑				↓
	• Urea synthesis		↑		• Glutamine synthesis		
	• Glutamine degradation		↑		= Liver: glutamine-consuming		
	• Consumption of HCO_3^-		↑				