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Potential renal acid load of foods and its influence on urine pH.

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The purpose of this study was to calculate the potential renal acid load (PRAL) of selected, frequently consumed foods. A physiologically based calculation model was recently validated to yield an appropriate estimate of renal net acid excretion (NAE); the model depends primarily on nutrient intake data. When nutrient data from actual food composition tables were used, the calculation model yielded PRAL values that ranged from an average maximum of 23.6 mEq/100 g for certain hard cheeses over 0 mEq/100 g for fats and oils to an average minimum of approximately -3 mEq/100 g for fruits and fruit juices and vegetables. By means of these PRAL data (summed according to the amounts of foods and beverages consumed daily and by an estimate of excretion of organic acids [based on body size]), the daily NAE can be calculated. This calculation methodology, primarily based on PRAL, allows an appropriate prediction of the effects of diet on the acidity of urine. For practical applicability in dietetic prevention of recurrent urolithiasis or in other fields of dietetics, the additionally determined correlation ( $r = .83$ ;  $P < .001$ ) between NAE and urine pH can be used to ascertain NAE target values for a desired urine pH modification.