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*Dakota Diabetes Coalition is proud to offer this column on diabetes and related concerns every other Friday.*



Dr. Johnson is a family practice doctor in Grand Forks with a special interest in diabetes -- and a special knack for writing. As a member of the Dakota Diabetes Coalition, he has generously made himself available to answer questions through our listserv. If you have comments, or questions for Dr. Johnson to address in future columns, please contact [gailhand@q.com](mailto:gailhand@q.com)



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## Diabetes link

# Treat kidney disease to forestall kidney failure

The link between diabetes and kidney disease is long-established and well-known. Diabetic nephropathy remains the leading cause of kidney failure in the U.S. Kidney disease is a feature in both type 1 and type 2 diabetes. In a study of type 1 patients, the estimated prevalence of kidney disease at 7 years after diagnosis was 12%, and in type 2 patients, the prevalence was 25% at 10 years following diabetes diagnosis. Strategies exist to reduce progression to overt kidney disease in these patients.

Diabetic nephropathy is defined as urine protein >500 mg in a 24-hour collection in an individual with known diabetes. Usually, these patients have a history of microalbuminuria, the presence of microalbumin in the urine. Other tests used to monitor kidney status are the serum creatinine and creatinine clearance. Creatinine clearance is now commonly included in most clinical labs chemistry panels, and this is a calculated value reflecting overall kidney function, and is often more useful than serum creatinine. The MDRD is a common calculation used

for creatinine clearance, and an MDRD calculator is available at <http://mdrd.com/> and <http://www.nkdep.nih.gov>  
For more detailed information, The National Kidney Foundation guidelines are available at [http://www.kidney.org/professionals/kdoqi/guidelines\\_ckd/toc.htm](http://www.kidney.org/professionals/kdoqi/guidelines_ckd/toc.htm)

Currently, the American Diabetes Association recommends annual screening with a urine microalbumin. A "spot" test is sufficient for screening; 24-hour urine collections are cumbersome for screening and not likely to be cost effective. In most labs, a value of <30 is normal.

If two of three collected values over six months are abnormal, further evaluation with a 24-hour urine collection for total protein and creatinine clearance -- along with a referral to a nephrologist -- should be considered.

Many patients may show improvement in urine microalbumin with recommended treatments, to be discussed. Along with annual urine microalbumin testing, annual serum creatinine and creatinine clearance should be obtained. Declining renal function and microalbuminuria are associated with worse cardiovascular outcomes as well.

Recall that gross proteinuria (positive protein on dipstick testing) indicates that the patient has far exceeded the threshold of 30 on the microalbumin test; they have likely exceeded a urine microalbumin level of 300. This would be considered positive, and probably would need further workup or referral.

Staging chronic kidney disease is important for assessment and ongoing management.

Stage	Description	GFR (ml/min per 1.73 m <sup>2</sup> body surface area)
1	Kidney damage* with normal or increased GFR	≥90
2	Kidney damage* with mildly decreased GFR	60–89
3	Moderately decreased GFR	30–59

- |   |                        |                 |
|---|------------------------|-----------------|
| 4 | Severely decreased GFR | 15–29           |
| 5 | Kidney failure         | <15 or dialysis |

Treatment and prevention of kidney disease in diabetes includes targeting A1C <7 in most non-pregnant adults, good blood pressure control <130/<80, and weight management. Protein-restricted “renal” diets are indicated for patients with significant kidney disease and referral to a dietician for instruction is recommended. ACE inhibitors are indicated for non-pregnant adults with diabetes and hypertension and/or microalbuminuria/proteinuria. ARB drugs may be considered for type 2 patients as initial therapy or for patients intolerant of ACE inhibitors, those with ACE “cough”. Currently, use of ACE inhibitors and/or ARB drugs are not indicated solely because the patient has diabetes.

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[Treat Kidney Disease, Dr. Johnson’s Column #38, Feb. 6, 2009](#)