

KQuIP Hub: Pro forma for measurements and tools, relevant for use in the renal setting

Name of measurement / tool	<p>Dukes Activity Status Index (DASI)</p>
Variable to be measured	<p>This measures the functional capacity of individuals. It is a self-reported questionnaire, providing the individual's perspective of their ability to complete common day-to-day activities.</p> <p>The overall score can be used to estimate exercise capacity.</p>
Brief description of the measure / tool	<p>The DASI is a quick 12 item Yes or No questionnaire that measures functional capacity. The main measures include Yes/NO questions relating to personal care, walking, household tasks, sexual function and recreational activities [1]. A marking rubric is available with a weighted score for each answer. This allows the scorer to estimate the individuals exercise capacity [2].</p> <p>Measuring exercise capacity directly, through oxygen uptake tests can be costly and time consuming and not routinely provided in clinical practice. The DASI questionnaire provides an easy estimate of oxygen uptake. It was originally created and validated in cardiac patients and was found to match exercise capacity levels. It is now used widely in patients with Chronic Kidney Disease.</p> <p>It is simple to use with no associated cost and is widely used in the renal rehabilitation literature and clinical practice.</p> <p>To use the tool:</p> <ul style="list-style-type: none"> • Ask the patient to pick a yes or no response to each of the 12 items on the questionnaire. • The assessor can then refers to the marking rubric (available on the hub), and tally up their score. • Using a calculation on the rubric, the assessor can then calculate an estimate of exercise capacity, measured in METS (metabolic equivalent units).

<p>Relevance to the renal community</p>	<p>Patients with end-stage chronic kidney disease have reported difficulty with completing activities of daily living, reduced exercise capacity and low physical activity. Therefore this tool could be used assess physical function and estimate exercise capacity in patients with CKD. It is widely used in renal research] and clinical settings as it is easy to administer and low patient burden.</p>
<p>Relevance for a renal related QI project Describe how the measure / tool could be used in a renal QI project. This may not be exhaustive but may inspire others.</p>	<ul style="list-style-type: none"> • DASi could be used to estimate physical function and exercise capacity. • DASi could be used to evaluate activity or exercise interventions, to identify changes following an intervention • DASi could be used to identify/ screen lower functioning patients who may require more support to participate in exercise or physical activity [2].
<p>Accreditation (e.g. endorsed by a recognised organisation)</p>	<p>The DASi is endorsed by the British Renal Society Rehabilitation Network and is widely used in renal exercise and physical activity literature [2,4].</p>
<p>Validation (e.g. scientific and/or clinical validation)</p>	<p>The DASi questionnaire is validated in patients with Chronic Kidney Disease. A study comparing estimated exercise capacity (oxygen uptake) values from the DASi questionnaire with actual exercise capacity (oxygen uptake) readings, has shown good validity (53-60%) in patients with end stage Chronic Kidney disease [2].</p> <p>The DASi questionnaire has been shown to provide consistent readings, with a strong test re-test reliability (71-81%) [2]. The DASi questionnaire has since been widely reported in renal exercise literature [4].</p>
<p>Impact upon the patient pathway Is this part of patient's normal care or in addition to this? How much will it alter the patient's care?</p>	<p>The DASi score can be completed by individuals in 10 minutes and has no other effect on the patient pathway.</p>

Expertise / Skill / Professional Registration required to use the measurement / tool	<ul style="list-style-type: none"> • Easy to use, simple scoring grid to calculate predicted exercise capacity • Minimum expertise used to deliver tool with no formal training required 	
Resources needed E.g. Medicines, devices, healthcare professionals	Equipment and Consumables	Free to use
	Time	Time taken for patient to complete (approximately 10 minutes) and to calculate the score using the rubric
	Training	No formal training required
	Licenses	None
How to access the measurement / tool	A copy is available within the KQuIP hub	
Main strengths of the measurement / tool	<ul style="list-style-type: none"> • Quick and easy to administer • Low patient burden • Minimal training and skill to calculate score • Can predict exercise capacity (VO₂peak) which is not routinely performed in all renal patients • Widely reported in renal exercise studies • The tool is well validated, so can be used for comparison between individuals or cohorts 	
Main limitations of the measurement / tool	<ul style="list-style-type: none"> • The DASl can have over estimate oxygen uptake/VO₂peak values by 2.1 ml/kg/ min [2]. • It was originally created for cardiac patients [1], whilst most renal patients may have cardiac history or risk, the tool may need further modification for CKD patients. 	
References	<p>[1] Hlatky MA, Boineau RE, Higginbotham MB, Lee KL, Mark DB, Califf RM, Cobb FR, Pryor DB. A brief self-administered questionnaire to determine functional capacity (the Duke Activity Status Index). The American journal of cardiology. 1989 Sep 15;64(10):651-4.</p> <p>[2] Ravani P, Kilb B, Bedi H, Groeneveld S, Yilmaz S, Mustata S, Alberta Kidney Disease Network. The Duke Activity Status Index in patients with chronic kidney disease: a reliability study. Clinical Journal of the American Society of Nephrology. 2012 Apr 1;7(4):573-80..</p>	

	<p>[3] Greenwood SA, Lindup H, Taylor K, Koufaki P, Rush R, Macdougall IC, Mercer TH. Evaluation of a pragmatic exercise rehabilitation programme in chronic kidney disease. <i>Nephrology Dialysis Transplantation</i>. 2012 Oct 1;27(suppl 3):iii126-34.</p> <p>[4] Koufaki P, Kouidi E. Current best evidence recommendations on measurement and interpretation of physical function in patients with chronic kidney disease. <i>Sports medicine</i>. 2010 Dec 1;40(12):1055-74</p>
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