

## AMERICAN SOCIETY OF NEPHROLOGY-ASP JUNIOR DEVELOPMENT AWARD IN GERIATRIC NEPHROLOGY



### AWARD RECIPIENT

ERICA L. HARTMANN, MD

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### PROJECT

"IMPACT OF AN EXERCISE PROGRAM ON PHYSICAL FUNCTION AND QUALITY OF LIFE IN AGING CANDIDATES FOR RENAL TRANSPLANTATION"

### MENTORSHIP TEAM

STEPHEN B. KRITCHEVSKY, PHD

BARBARA NICKLAS, PHD

MICHAEL ROCCO, MD

The physical capacity of older candidates for renal transplantation and their ability to sustain exercise programs are currently unknown. The primary goal of this study is to determine the feasibility of an exercise intervention in older dialysis-dependent patients, assessing its effect on maintaining transplant candidacy and outcome after transplantation.

Clinical practice guidelines do not set an absolute age limit for evaluating potential renal transplant candidates. While cardiovascular risk assessment and malignancy screening are emphasized in the older age group, physical performance and the risk for disability are often overlooked. Although healthy older patients experience increased life expectancy after renal transplantation versus remaining on dialysis, outcomes such as the capacity to live independently and function well have not been studied. Given the poorer baseline health status in aging end-stage renal disease patients, rapid changes in health on dialysis, and the national organ shortage, it is increasingly important to identify factors predicting poorer outcomes and devise strategies that will maximize the benefit of transplantation in older individuals.

This study was developed with the mentorship of geriatricians Stephen Kritchevsky, PhD, and Barbara Nicklas, MD, experts in the area of functional measurement and exercise interventions for older adults, and Michael Rocco, MD, a nephrologist with extensive experience in clinical design and dialysis outcomes studies.

We hypothesize that muscle is the principal organ system underlying impaired physical function among older transplant candidates and that decreased muscle mass and physical functioning lead to poorer outcomes in older renal transplant

candidates. We propose that a simple bedside performance measurement of lower extremity functional limitations, the Short Physical Performance Battery, will be a strong predictor of outcomes in this patient cohort. We also propose that outcomes can be improved with exercise training, potentially leading to longer durations of active transplant candidacy and greater independence after successful transplantation. The specific aims of this research are:

1. Determine the feasibility of an exercise intervention in dialysis-dependent wait-listed patients more than 60 years of age who will be randomized to one of three groups: no intervention; a structured exercise program; or a self-selected physical activity-based counseling program.
2. Define the natural history of functional status in patients more than 60 years old who remain on dialysis or undergo renal transplantation; attempt to identify a subgroup of older wait listed patients who are at high risk for developing disability.

Upon completion of nephrology and transplant medicine fellowships, I joined the faculty at the Wake Forest University School of Medicine. I was impressed by the number of older and frailer patients being referred for renal transplant evaluation and their slow recovery post-transplantation. With the support of the American Society of Nephrology-ASP Junior Development Award in Geriatric Nephrology, I will conduct preliminary work that will drive the design of a future RO1 application focused on assessing the impact of pre-transplant fitness training on preserving physical function, preventing disability, and improving quality of life and outcomes post-transplantation.