**Title:**
Novel Barriers to Exercise for Patients With Chronic Kidney Disease

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Health Promotion for Patients with Kidney Disease
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9:30 AM

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Barriers, Chronic kidney disease and Exercise

**References:**
Artom, M., Moss-Morris, R., Caskey, F., & Chilcot, J. (2014). Fatigue in advanced kidney disease. *Kidney international, 86*(3), 497-505.

Avesani, C. M., Trolonge, S., Deléaval, P., Baria, F., Mafra, D., Faxén-Irving, G., . . . Fouque, D. (2012). Physical activity and energy expenditure in haemodialysis patients: An international survey. *Nephrology Dialysis Transplantation, 27*(6), 2430-2434.

Avramovic, M., & Stefanovic, V. (2012). Health-Related Quality of Life in Different Stages of Renal Failure. *Artificial Organs, 36*(7), 581-589.

Davies, N. (2011). Healthier lifestyles: behaviour change (Vol. 107, pp. 20-23). England: Macmillan Publishing Ltd.

Heiwe, S., & Jacobson, S. H. (2011). Exercise training for adults with chronic kidney disease. *Cochrane Database of Systematic Reviews*, *10*.

Hill, N. R., Fatoba, S. T., Oke, J. L., Hirst, J. A., O'Callaghan, C. A., Lasserson, D. S., & Hobbs, F. D. R. (2016). Global Prevalence of Chronic Kidney Disease - A Systematic Review and Meta-Analysis. *PLoS One, 11*(7), e0158765.

Momeni, A., Nematolahi, A., & Nasr, M. (2014). Effect of intradialytic exercise on echocardiographic findings in hemodialysis patients. *Iran J Kidney Dis, 8*(3), 207-211.

Smart, N., McFarlane, J., & Cornelissen, V. (2013). The Effect of Exercise Therapy on Physical Function, Biochemistry and Dialysis Adequacy in Haemodialysis Patients: A Systematic Review and Meta-Analysis. *Open J Nephrol, 03*(01), 25.

World Health Organization. (2015). Global Health Observatory data repository- Prevalence of insufficient physical activity among adults. Retrieved from http://apps.who.int/gho/data/view.main.2482?lang=en on December 5, 2016.

Young, H. M., Hudson, N., Clarke, A. L., Dungey, M., Feehally, J., Burton, J. O., & Smith, A. C. (2015). Patient and Staff Perceptions of Intradialytic Exercise before and after Implementation: A Qualitative Study. *PLoS One, 10*(6), e0128995.

**Abstract Summary:**
This abstract will report findings of an integrative review on patient-identified barriers to exercise for patients with chronic kidney disease. Fatigue and self-reporting of comorbid health problems were the most commonly reported barriers. These findings present a unique opportunity for nurses to assess, intervene, and educate to promote exercise adherence.
**Learning Activity:**

| LEARNING OBJECTIVES | EXPANDED CONTENT OUTLINE |
|---|---|
| Describe the most commonly reported barriers that patients with chronic kidney disease report that prevent them from exercising. | -Prevalence of chronic kidney disease, consequences of kidney disease, inactivity levels of patients with chronic kidney disease, and the role of exercise in improving health. -Results and synthesis of the 14 publications on patient reported barriers to exercise in patients with chronic kidney disease. |
| Determine the key components of a nursing assessment and education plan to evaluate and overcome barriers to regular exercise for patients with chronic kidney disease. | Implications of the findings for nursing practice with individualized barriers assessment, assessment of fatigue, and education about exercise. |

**Abstract Text:**

**Purpose:** Chronic kidney disease (CKD) is a common chronic condition, with an estimated prevalence of 11-13% worldwide (Hill et al., 2016). Despite medical treatment advances, CKD remains a debilitating condition that contributes to a myriad of clinical consequences (Avramovic & Stefanovic, 2012). Exercise is known to promote health and possibly delay certain comorbidities in patients with CKD (Momeni, Nematolahi, & Nasr, 2014; Smart, McFarlane, & Cornelissen, 2013). Despite the potential benefits of regular exercise training, patients throughout the world with CKD are not exercising and 45% have been found to be sedentary and 19% low active (Avesani et al., 2012), as compared to 23% of the world population that is thought to be insufficiently active (World Health Organization, 2015) . Nurses have the opportunity to be on the front-line to help initiate healthy lifestyle changes such as regular exercise and daily physical activity. However, for nurses to provide optimal and effective interventions to empower patients to initiate an exercise regimen on their own, a clear understanding of the major reasons patients with CKD do not exercise is needed. Unfortunately, minimal exploration has been completed investigating patient reported barriers to exercise. The aim of this integrative review is to investigate the barriers that adult patients with CKD throughout the world report that prevent them from regularly exercising. Identification of these barriers will enable nurses and nurse researchers to address barriers to promote regular exercise and increases in daily physical activity for patients with CKD.

**Methods:** Seven electronic databases were searched to locate studies for an integrative review on patient reported barriers to exercise: Medline via PubMed, Medline via Ovid, CINAHL via EBSCO, PsychInfo via EBSCO, Embase, ProQuest Dissertations and Theses, and Scopus. The following key words were utilized, depending on database preference language: barriers; contraindications; hurdles; compliance; patient compliance; adherence; concordance; guideline adherence; self-perception; self-concept; treatment refusal; motivation; health knowledge, attitudes, and practice; exercise; physical activity; motor activity; and versions of phrases for CKD and end stage renal disease (ESRD.) The inclusion criteria were articles that included a) patients 18 years and older b) patients with CKD Stage 3-5

or ESRD requiring hemodialysis or peritoneal dialysis c) patient reported barriers to regular exercise d) and were available in English. Studies were excluded if they a) only discussed associations of exercise limitations and exercise frequency b) listed reasons for not participating in or withdrawing from an exercise intervention study c) or included post-kidney transplant recipients. The final search date was September 30, 2016.

**Results:** The results of this integrative review had an initial search yield of 384 publications which, after the application of the inclusion and exclusion criteria, were reduced to 14 publications. The included articles were published between 2001-2015. The studies took place in eight different countries. Descriptive quantitative design via survey was utilized in eight of the 14 studies to evaluate patient identified barriers to exercise. Four studies applied a qualitative method, utilizing interviews and focus groups. Two studies utilized mixed methods. Fatigue or lack of energy was the most frequently reported barrier, being found in in twelve of the fourteen studies. Self-report of comorbid health problems was the second most commonly reported barrier and was noted in eight of the 14 studies.

**Conclusion:** The barriers patients with CKD report that prevent them from regularly exercising are complex and diverse. Twenty-four distinct barriers were elucidated through the results of this integrative review of literature from around the world (see Table 1). Fatigue and low energy levels were the most frequently reported barriers noted in the literature. This is not consistent with barriers that have previously been identified in healthy individuals or other chronic diseases. More importantly, this is an area that needs to be addressed in research to improve exercise and physical activity habits for patients with CKD. In previous studies, the barrier to exercise described by healthcare providers of patients with CKD has primarily been reported to be disinterest (Young et al., 2015). In addition, much of the current exercise intervention research has focused on making exercise convenient (Heiwe & Jacobson, 2011). Fatigue was a common and important barrier to exercise in this integrative review. Fatigue is a devastating syndrome in patients with CKD (Artom, Moss-Morris, Caskey, & Chilcot, 2014). It is clear that more research is needed into methods to treat, prevent, and overcome fatigue in patients with CKD, so they can participate in self-care activities like exercise and increased levels of habitual daily physical activity.

The most important implication for nursing practice from this integrative review is the importance of assessing each patient's barriers to exercise. It appears that the barriers identified by healthcare providers are not the most frequently reported barriers by patients (Young et al., 2015), which emphasizes the need for an individualized approach to address each patient's barriers to exercise and daily physical activity. Nephrology nurses have an important role in the assessment and care planning of patients with CKD who suffer from fatigue. With assessment and collaborative care planning with a multidisciplinary team, nurses can help improve this debilitating barrier that prevents patients from exercising and participating in healthy behaviors. In addition to assessment and care planning, patient education is a critical component of the nurse's role in encouraging exercise interventions and helping patients overcome barriers to exercise (Davies, 2011).

This is the first integrative review to explore barriers to exercise for patients with chronic kidney disease. The most commonly reported barrier to exercise elucidated in this review was fatigue and low energy. The identification of these barriers helps nurses tailor their assessment and educational practices to address the unique barriers that prevent patients with CKD from exercising. With the appropriate assessment and education on barriers to exercise, patients with CKD may be empowered to begin exercise and receive the health promoting benefits of exercise.

Table 1- Patient Reported Barriers

| **Reported Barrier** | **Number of Times Found in the Literature** |
|---|---|
| Fatigue | 12 |
| Co-morbid Health Conditions | 8 |

| | |
|---|---|
| Lack of Time or Access | 7 |
| Fear of Falling | 6 |
| Pain | 5 |
| Depression | 3 |
| Lack of Motivation | 3 |
| Being Incapable of Exercise | 2 |
| Environmental Limitations (weather, air quality, etc.) | 2 |
| "Renal disease" (CKD or HD) | 2 |
| "Being out of shape" | 1 |
| Concern or Complications | 1 |
| Dislike of Exercise | 1 |
| Employment | 1 |
| Exercise Is Tiring | 1 |
| Healthcare Provider Guidance | 1 |
| Lack of Company | 1 |
| Lack of Interest | 1 |
| Lack of Money | 1 |
| Lack of Understanding | 1 |
| Shortness of Breath | 1 |
| Stress | 1 |
| Vascular Access | 1 |
| Weakness | 1 |