

CLAHRCBITE

Brokering innovation through evidence

Regular resistance exercise alleviates detrimental inflammatory signalling in CKD



Results

Long Term Resistance training removes detrimental inflammation caused by a single bout of resistance exercise and reduces Chronic Kidney Disease related muscle protein breakdown in pre-dialysis patients.

Who needs to know?

People with CKD, clinicians and other healthcare professionals.

What did we do:

For this study we took a cohort of CKD patients who either completed an 8-week resistance training program consisting of 3 supervised sessions per week or continued without the exercise intervention. Muscle biopsies were taken before and after training to investigate the effects of resistance training on markers of inflammation and protein breakdown at the tissue level.

What we found and what does this mean:

Patients with CKD exhibit a large intramuscular inflammatory response to exercise in an untrained state. However, 8-weeks of resistance training was able to suppress the expression of inflammatory markers, suggesting that this kind of training does not provoke on-going detrimental inflammation in muscle. We have also shown that this training was able to increase regulators of muscle development and growth, leading to a state of hypertrophy in CKD patients.

What next:

Following on from this work we believe further investigation is warranted to continue to define the effect of this type of exercise on proteins and inflammatory factors involved in the hypertrophic response in CKD patients. This will provide further insight into the use of resistance exercise in CKD as a hypertrophic intervention to offset losses in muscle function noted in CKD.

Evidence:

Watson EL, Viana JL, Wimbury D, Martin N, Greening NJ, Barratt J, Smith AC. The effect of resistance exercise on inflammatory and myogenic markers in patients with chronic kidney disease. *Frontiers in Physiology*. 2017;8(JUL). <http://dx.doi.org/10.3389/fphys.2017.00541>

What is NIHR CLAHRC EM?

NIHR Collaborations for Leadership in Applied Health Research and Care (CLAHRCs) are collaborations between the NHS, universities and local organisations. Our goals are to conduct applied health research across the East Midlands and translate our research findings into improved outcomes for the public.

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