

## High intensity interval training in renal transplant recipients: perceptions, experiences, and readiness to participate

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**Introduction:** It is well known that physical activity is highly beneficial in reducing the risk of cardiovascular disease (CVD) in the general population and in many individual disease states. However, research in renal transplant recipients (RTRs) is limited and only 27% are sufficiently active for health in the UK (defined by meeting the national physical activity guidelines of 150 min/week of moderate intensity exercise). Recent literature has alluded to exercise being 'anti-inflammatory' which may have a direct benefit to combat the excess inflammation in RTRs brought about by many factors including daily immunosuppressive medication. A recent abundance of literature around high intensity interval training (HIIT) has revealed a novel and time efficient method to reduce CVD risk. This area is under-researched in RTRs but large-scale efficacy trials are expensive and labour intensive. Therefore, more information about RTRs' perspectives and experiences of HIIT is needed before definitive trials are completed. The aim of this research was to explore RTRs' perceptions and experiences of, and readiness to participate in, HIIT.

**Method:** All RTRs were eligible if their renal transplant was completed >12 weeks prior to recruitment and their consultant considered no major contraindications to exercise. 13 RTRs (8 males; age 53 [ $\pm$ 13] years; eGFR 53 [ $\pm$ 21] mL/min/1.73m<sup>2</sup>) completed semi-structured one-to-one interviews at University Hospitals of Leicester NHS Trust. Interviews were audio recorded, transcribed verbatim and subject to framework analysis in order to identify and report emerging themes.

**Results:** Overall, participants described a basic knowledge of HIIT and were open to participation. Acknowledgement of superior benefits to cardiovascular, mental, and general health as well as the lower time commitment were expressed as motivators for participation. Curiosity was a key identified theme: "I'd be very interested in doing it to see how I can react and cope with it. I'm interested to see how I react to it after transplant and at my age as well." (Male, 65). There were heightened concerns conveyed around damaging the kidney and 'knowing your limits' which participants associated with a lack of exercise guidance and support: "So I think I'd probably worry about that more than someone that hasn't got anything wrong with them. Like to them, their heart rate going up, that's just normal, whereas with me I think I would probably worry about it more." (Female, 32). Personalisation, doctor's approval and supervision were suggested as important factors in the participant's decision to take part in HIIT.

**Discussion:** This study provides some evidence that HIIT could be, in principle, largely accepted by RTRs. However, several issues were identified in the present study that require careful consideration for the success of any future efficacy trial. These include: the importance of doctor's approval, supervision, and personalisation, timing of the intervention post-transplant and education surrounding HIIT. A lack of general and specific exercise guidance and support was described by many participants, which seemed to impact their readiness to participate in HIIT, particularly in those who were less confident with exercise in general.