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P317 -How handgrip strength changes over the course of a haemodialysis session.

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Introduction
Prevalence of protein-energy wasting (PEW) in patients undergoing haemodialysis (HD) is thought to occur in approximately 40-70% of the population, with higher risks of morbidity and mortality1-3. Common measures used to assess malnutrition in this group include weight, weight change and subjective nutritional screening tools. Each method has limitations due to changes in fluid status and the subjectivity of the tools respectively, resulting in the potential for under diagnosis and a delay in nutritional support, thus compromising patients' health. Handgrip strength (HGS) is a non-invasive, bed-side test which has been shown to detect muscle loss, nutritional decline, quality of life and survival in the HD population4-7. It is a cheap and easy instrument to use, offering an alternative tool in measuring PEW. However, no research has been completed on HGS validity when taken during dialysis. Therefore, before the accuracy of using HGS to measure nutritional status during HD can be investigated, its validity as a measure taken during HD must first be established. The aim of this study was therefore to measure the variation in HGS over the course of a single (3-4 hour) HD session and to determine what factors affect it.

Method
Study Design: A within subjects, repeated measures observational study, measuring HGS at a single UK haemodialysis centre.

Subjects: All adult maintenance HD patients were invited to take part in the study. Sixty-one (41 male, 20 female), aged 69 years, with an inter-quartile range (IQR) of 23 (55.5-78) took part.

Main outcome measure: Participants had their HGS measured using the GRIP-D (Takei Scientific Instruments Co., Ltd®) hand dynamometer before, after and at five time-points during a single HD session, measured to the nearest 0.1 kilogram. This was repeated 1 month later to test for test-retest reliability. Measures were checked against patient demographics and clinical parameters.

Analysis: Data was analysed using IBM SPSS (version 22). The change in HGS was assessed using a repeated measures ANOVA and multiple linear regression was used to identify factors associated with HGS pre-dialysis. Significance was set at $p<0.01$.

Results
HGS changed significantly over the course of a single HD session, $F(4.25, 254.7)=10.57$, $p<0.01$, declining from time-point 1 through to 6, before increasing again at time-point 7. This absolute change from pre to post-dialysis was non-significant at $t=2.18$, $p=0.03$. HGS was greater in men than women ($t=3.8$, $p<0.01$) and lower in those aged 65 years and older compared to those less than 65 years of age, however this was not statistically significant ($p>0.05$). No clinical parameters were found to be associated with HGS.

Conclusion
Findings suggest that HGS is a stable measure when conducted during HD and therefore may provide a useful tool when used during this process. These findings support the need for further research to

investigate the validity of HGS in assessing nutritional status compared to other methods when taken on HD.