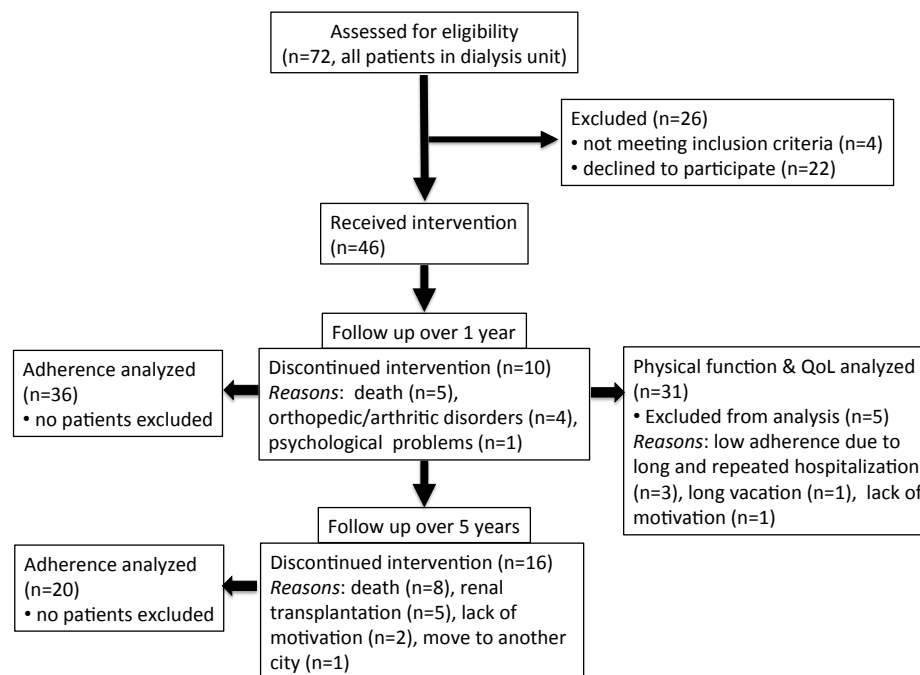


Supplementary Material for
“A structured exercise program during hemodialysis for chronic kidney
disease patients: Clinical benefit and long term adherence”

by K. Anding *et al.*

1. CONSORT flow diagram



2. Estimate of initial patient collective necessary for a quantitative exercise training evaluation over 5 years

In the following we estimate the initial patient collective N_{tot} necessary to have N patients for quantitative exercise training evaluation over 5 years. The following losses are assumed to occur over the 5 year span. Numbers are given in fractions which refer to our collective.

Total drop out: 78.3%

Drop outs due to death: 50%.

Interpolating between the published mortality [15,0 deaths per 100 patient years (py) in DOPPS data, *Kidney International* (2014) 85, 158–165]] and the quite low mortality rate of 5.7 /100 py in our study, we assume 10 /100 py. The 10/ 100 py would correspond to 23 deaths over our 230 py of the study which would amount to 50% of our $N_i= 46$ of initially exercising patients.

Other drop outs: 28.3%

In our study we have lost 13 patients (=28.3%) out of 46 due to reasons other than death.

Clinical stability: 50%

From the 20 patients still exercising after 5 years 10 were in clinically sufficiently stable condition for quantitative exercise training evaluation over the entire 5 years.

Voluntary participation: 64%

Voluntary participation has been a key element for the success of our program. Out of the $N_{\text{tot}} = 72$ patients $N_i = 46$ opted for participating in the structured exercise program.

Summarizing these factors leads the relation

$$N_{\text{tot}} = N / [(1 - 0.783) * 0.5 * 0.64] = 14.4 N.$$

How large N should be depends on the details of the data one would like to retrieve. For the quantitative data we have obtained we observe a spread among the patient results over time (see increasing variance in Figure 2 of the main paper). Keeping the final patient collective N small requires a study design, which after certain time spans dynamically assigns the patients to three different training achievement categories to be pre-defined. If each category is evaluated separately, we estimate that $N = 3 * 10 = 30$ is sufficient. Without such a split of groups $N \sim 50$ appears to be a lower limit.