**Info for readme file to accompany *British Journal of Nutrition* data archive:**

Archived data pertaining to article: Edinburgh R.M., Hengist, A, Smith, H.A, Betts, J.A, Thompson, D., Walhin, J.P. & Gonzalez, J.T. (2017). **Prior exercise alters the difference between arterialised and venous glycaemia - implications for blood sampling procedures.** *British Journal of Nutrition.*The trial is registered underClinicalTrials.gov. Identifier no. NCT02852044.

As described in the manuscript, ten healthy men completed a preliminary assessment of body composition and an incremental cycling exercise test, before two main trials, where a 120-minute oral glucose tolerance test (OGTT) was completed either after rest or moderate intensity cycling. Arterialised and venous blood samples were collected simultaneously at baseline (after a minimum 10 h fast) and at 15 minute intervals post glucose ingestion. To obtain arterialised samples, participants placed their dominant hand into a heated-air box (at 55°C) and after 20 minutes, an intravenous cannula was fitted in a dorsal hand vein (retrograde). To obtain venous samples, an intravenous cannula was fitted in the antecubital fossa of the contralateral arm (antegrade). All samples for a given participant were analysed in batch within the same assay/plate.

In one exercise trial (participant 2) the 105 and 120 minute post OGTT blood samples were not collected from both sampling methods, and for these time points the last observation (i.e. 90 minute) carried forward approach was used. There were no other missing data points.

HEIGHT

The height of each participant was measured as the distance from the floor (feet against the wall, barefoot, ankles together) to the top of the head (against the wall, looking ahead) after maximal inspiration and straight legs, to the nearest 0.1 cm using a wall-mounted stadiometer (Holtain Ltd., UK).

BODY MASS

The weight of each participant was measured to the nearest 100 g using electronic scales (TANITA Inner Scan Body Composition Monitor-BC453, Tokyo) whilst they wore minimal clothing (lightweight shorts and t-shirt only).

MAXIMAL OXYGEN UPTAKE TEST

Participants completed a maximal oxygen uptake test before the first main trial, at a self-selected cadence on an electronically-braked ergometer (Excalibur Sport, Lode®, Groningen, Netherlands). The initial power output was set at 50 W and was increased by 50 W every four minutes, for four stages. Thereafter, the power output was increased by 20 W every minute until volitional exhaustion. Breath-by-breath measurements were recorded using an online gas analysis system (TrueOne2400, ParvoMedics, Sandy, USA). The volume and gas analysers used were calibrated with a 3 L calibration syringe (Hans Rudolph, Kansas City, USA) and known concentrations of a calibration gas (16.04 % O2; 5.06 % CO2) respectively.

*MAXIMAL POWER OUTPUT (MPO)*

Maximal power output (MPO) was taken as the work rate of the last completed stage, plus the fraction of time in the final non-completed stage, multiplied by the work rate increment.

*VO2 PEAK*

Peak oxygen uptake (VO2 peak) was taken as the highest average recorded oxygen uptake value over a rolling 30 second period.

GLUCOSE

Blood plasma (EDTA-treated) concentrations of glucose were assayed using a Daytona RX automated clinical chemistry analyser (Randox, Crumlin) according to manufacturer’s instructions.

INSULIN

Blood plasma (EDTA-treated) concentrations of insulin were assayed via Enzyme-Linked Immuno-Sorbent Assay (ELISA; Mercodia, Uppsala) according to manufacturer’s instructions. Intra-assay coefficient of variation, 3.7 %; inter-assay coefficient of variation 6.5 %.

TRIACYLGLYCEROL

Blood plasma (EDTA-treated) concentrations of triacylglycerol were assayed using a Daytona RX automated clinical chemistry analyser (Randox, Crumlin) according to manufacturer’s instructions.

LACTATE

Blood plasma (EDTA-treated) concentrations of lactate were assayed using a Daytona RX automated clinical chemistry analyser (Randox, Crumlin) according to manufacturer’s instructions.

TIME-AVERAGED AREA UNDER THE CURVE

The time-averaged area underneath the concentration-time curve (AUC) for the plasma glucose, insulin, lactate and triacylglycerol OGTT responses (0-120 minutes) was calculated via the trapezoid rule. The total AUC was divided by the time over which samples were collected (120 minutes) to provide a time-averaged AUC.

PEAK GLUCOSE/INSULIN

The peak values for glucose and insulin were recorded as the highest measured value for glucose and insulin during the 120 minute OGTT.

ISI MATSUDA INDEX

The fasted baseline glucose and insulin data were combined with the mean glycemic and insulinemic responses over 2 h during the OGTT and used to calculate the ISI Matsuda Index using the equation: 10000/SQRT((baseline glucose [mg/dL]\*baseline insulin [mIU/L])\*(mean glucose [mg/dL]\*mean insulin [mIU/L])).

ISICEDERHOLM INDEX

The ISI Cederholm Index was calculated as: 75000 + [baseline glucose (mmol/L) - glucose at OGTT 120 (mmol/L)] x 0.19 x 180 x 1.15 x Body Mass (kg) / [120 x log mean insulin over 120 minutes (mIU/mL) x mean glucose over 120 minutes (mmol/L)].

ISISTUMVOLL INDEX

The ISI Cederholm Index was calculated using the equation: 0.226 - [0.0032 x BMI (kg/m2)] - [0.000064 x plasma insulin at OGTT 120 (mIU/ml)] - [0.0037 x plasma glucose at OGTT 90 (mmol/L)].

HOMA2-IR

The fasted (OGTT 0 minute) glucose and insulin data were used to calculate the HOMA-IR as per instructions provided at:

<https://www.dtu.ox.ac.uk/homacalculator/download.php>

QUICKI-IR

The fasted (OGTT 0 minute) glucose and insulin data were used to calculate the QUICKI-IR using the equation: 1/ [log plasma insulin at OGTT 0 (mIU/ml) + log plasma glucose at OGTT 0 (mg/dl)].