Readme file relative to the dataset associated to the publication *Malkoc K, Casagrande S and Hau M (2021) Inferring Whole-Organism Metabolic Rate From Red Blood Cells in Birds. Front. Physiol. 12:691633. doi: 10.3389/fphys.2021.691633*

Data filename: FrontiersInPhysiology_Malkoc et al 2021

Data file description: these data were collected as part of the PhD project of Dr. Kasja Malkoc to test whether cellular metabolic rate measured in birds' red blood cells can be used as a proxy for whole-organism metabolic rate as measured in respiratory chambers (traditional respirometry). Data were collected from a captive population of great tits (*Parus major*) housed in outdoor aviaries at the Max Planck Institute for Ornithology, Starnberg, Germany. Birds had the same age at the time of data collection.

Data file format: csv

Principle Investigator/Data owner: **Kasja Malkoc**, Evolutionary Physiology Group, Max Planck Institute for Ornithology, Seewiesen, Starnberg, 82319, Germany; office phone number: 08157-932281; website: https://www.orn.mpg.de/person/54741/2606

Contact person: Kasja Malkoc, Evolutionary Physiology Group, Max Planck Institute for Ornithology, Seewiesen, Starnberg, 82319, Germany; office phone number: 08157-932281; e-mail address: kmalkoc@orn.mpg.de

Data collection dates: 2nd Dec 2019 – 10th Dec 2019

Geographic coverage: Max Planck Institute for Ornithology, Seewiesen, Starnberg, 82319, Germany

Keywords: Avian erythrocytes, mitochondria, glucocorticoids, aerobic metabolism, respirometry, stress response

Methods: data collection methods are reported in the correspondent publication: *Malkoc K, Casagrande S and Hau M (2021) Inferring Whole-Organism Metabolic Rate From Red Blood Cells in Birds. Front. Physiol. 12:691633. doi: 10.3389/fphys.2021.691633*

Quality assurance: All blood sampling was carried out by the three authors (KM, SC, MH) of the correspondent publication; Hormonal analysis were carried out by KM as well as respirometry analysis and morphometric measures; SC carried out high resolution respirometry.

Colum headers: **Date (yyyymmdd):** the date of sampling in the format year-month-day (yyyymmdd); **Measurement**: categorical variable with two levels (initial; final) indicating whether the value is referring to the initial data point or the final one (see methods in the correspondent paper); **Bird ID**: number that uniquely identifies each individual measure din the study; **Sex**: the sex of the individual; **Mass**: the body weight of the individual; **Ambient temperature (C)**: The actual ambient temperature in Celsius recorded in the outdoor aviary the morning when the correspondent individual was sampled. This ambient temperature equals the one set in the indoor part of the experiment (see methods in the correspondent paper); **woMR Chamber ID**: a categorical variable with three levels (1,2,3) coding for each of the three independent respirometry units; **cMR Chamber ID**: a categorical variable with two levels (A,B) coding for the two chambers in the Oroboros machine used to perform high resolution respirometry from avian erythrocytes samples; **woMR (mLO2/min)**: the mean oxygen consumption rate of the individual averaged over the initial or final 10 minutes of respirometry recording (depending on measurement) expressed as mL of Oxygen consumed per minute (see methods in the correspondent paper); **cMR (pmolO2/sec volume RBC)**: the oxygen consumption rate measured from avian erythrocytes samples, expressed as pmol of Oxygen per second normalized by amount of red blood cells (see methods in the correspondent paper); **Cort(ng/mL)**: plasma corticosterone concentration expressed as ng per mL of plasma; **Blood sample**

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latency (sec): seconds elapsed from the onset of disturbance until the blood sample was obtained; **Bleeder ID**: categorical variable with three levels (KM, MH, SC) corresponding to the initials of the person who collected the blood sample; **Assay Plate ID**: categorical variable with two levels (plate1, plate2) corresponding to the two assay plates on which corticosterone samples were run; **Locomotor activity (%/h)**: percentage of locomotor activity expressed by each individual within the corresponding hour of reference (see methods in the correspondent paper);

Missing data: missing data are indicated as ''NA"

Related publication: *Malkoc K, Casagrande S and Hau M (2021) Inferring Whole-Organism Metabolic Rate From Red Blood Cells in Birds. Front. Physiol. 12:691633. doi: 10.3389/fphys.2021.691633*