The list of studies included in **Table S1**. Notes on data collection in some studies are denoted by superscripted numbers in parenthesis, which are explained at the end of this list.

1 Abe, A.S., & Mendes, E.G. (1980). Effect of body size and temperature on oxygen uptake in the water snakes *Helicops modestus* and *Liophis miliaris* (Colubridae). *Comp. Biochem. Physiol.,* 65, 367-370.

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Notes:

1. Regressions based on resting individuals were only included in the present dataset. Regressions based on starving animals were not used because these represent a state of stress, as described in the original study, but also evidenced by the higher metabolic level of these animals compared to resting individuals. Regressions based on fed animals were not used either, because these were measured during feeding and thus actively swimming during the collection of data.
2. Regressions performed using data shown in figure 1(a).
3. Regressions based on all ontogenetic states (juveniles, sub-adults, and adults) were included in this dataset.
4. Regressions performed using data shown in figure 2.
5. Regressions with *p*-values > 0.05, totalling 4, were not included in this dataset.
6. Regressions based on both males and females were only included from May measurements.
7. Regressions based on bimodal respiration (animals allowed to breathe in water and air) were included only.
8. Regressions performed using data shown in figure 1.
9. Regressions were performed from data from individual measurements provided in the tables included in the thesis’ appendix, since data from equations and figures did not mach.
10. Regressions performed using data provided in the Supplementary Information.
11. Separate regressions were performed for each temperature treatment (1, 3 and 6 ℃) using data shown in figure 2.
12. Regressions based on combined data from juveniles and adults from both populations (i.e., Island and Mainland) were only included.
13. Regressions based on bimodal respiration were included only.
14. Regression parameters for *Coregonus albula* were collected from Ohlberger et al. (2007).
15. Regressions based on bimodal respiration were included only.
16. Regressions were performed using data shown in figure 1 (after log-transformation).
17. The regression based on *Varanus caudolineatus* data at 25 ℃ from Atley site was not included in this dataset due to its *p*-value > 0.05.
18. Regressions were performed using data from figure 1, since data from equations in the text and figure 1 did not match.
19. Regressions were performed using data of the entire body mass range provided in table 2. Regressions based on fed animals were not included in this dataset because these were measured during feeding and thus actively swimming during the collection of data.
20. Body mass ranges for these regressions were found in the tables included in the appendix of the original study.

The list of studies included in **Table S2**. Notes on data collection in some studies are denoted by superscripted numbers in parenthesis, which are explained at the end of this list.

1 Armstrong, J.D., Priede, I.G., & Lucas, M.C. (1992). The link between respiratory capacity and changing metabolic demands during growth of northern pike, *Esox lucius* L. *J. Fish Biol.*, 41, 65-75.

2 Auer, S.K., Salin, K., Rudolf, A.M., Anderson, G.J., & Metcalfe, N.B. (2015). The optimal combination of standard metabolic rate and aerobic scope for somatic growth depends on food availability. *Funct. Ecol.*, 29, 479-486.

3 Brett, J.R. (1965). The relation of size to rate of oxygen consumption and sustained swimming speed of sockeye salmon (*Oncorhynchus nerka*). *J. Fish. Res. Board Can.*, 22, 1491-1501.

4 Brett, J.R., & Glass, N.R. (1973). Metabolic rates and critical swimming speeds of sockeye salmon (*Oncorhynchus nerka*) in relation to size and temperature*. Fish. Res. Board Can.*, 30, 379-387.

5 Christensen, E.A., Svendsen, M.B., & Steffensen, J.F. (2020). The combined effect of body size and temperature on oxygen consumption rates and the size‐dependency of preferred temperature in European perch *Perca fluviatilis*. *J. Fish Biol.,* 97, 794-803.

6 Cutts, C.J., Metcalfe, N.B., & Taylor, A.C. (2002). Juvenile Atlantic salmon (*Salmo salar*) with relatively high standard metabolic rates have small metabolic scopes. *Funct. Ecol.*, 16, 73-78.

7 Du Preez, H.H. (1987). Laboratory studies on the oxygen consumption of the marine teleost, *Lichia amia* (Linnaeus, 1758). *Comp. Biochem. Physiol.*, 88, 523-532.**(1)**

8 Du Preez, H.H., Mclachlan, A., & Marais, J.F.K. (1986). Oxygen consumption of a shallow water teleost, the spotted grunter, *Pomadasys commersonni* (Lacépéde, 1802). *Comp. Biochem. Physiol.*, 84, 61-70.**(2)**

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Notes:

1. Induced activity regressions were not considered as maximal metabolic rates in the figure 3 of the present manuscript, as these measurements did not control for exhaustion or maximum swimming speeds.
2. Induced activity regressions were not considered as maximal metabolic rates in the figure 3 of the present manuscript, as these measurements did not control for exhaustion or maximum swimming speeds.
3. Regressions with *p*-values > 0.05, totalling 5, were not included in this dataset. Moreover, induced activity regressions were not considered as maximal metabolic rates in the figure 3 of the present manuscript, as these measurements did not control for exhaustion or maximum swimming speeds.
4. Regressions were performed from data from individual measurements provided in the tables included in the thesis’ appendix, since data from equations and figures did not mach.
5. Regressions for active metabolic states (i.e., increasing swimming speeds) were performed from raw data, kindly shared by D.S. Glazier.
6. Regressions for active metabolism was performed from data shown in figure 2, using absolute respiration rates instead of mass-specific values.