This supplementary file contains:

1. A study design schematic with accompanying description.
2. The trials completed for each individual participant.
3. Individual responses for high and low clothing coverage.
4. Temporal core and skin temperature responses to each condition.
Fourteen participants were enrolled, with 7 completing SOLAR vs SHADE trials in low clothing coverage (0.3 Clo), and 7 in high clothing coverage (0.9 Clo). After completing a trial in a reference (control) environment of 15°C, 50% Rh, SOLAR vs SHADE comparisons were conducted. Experimental trials were always completed on separate days, at the same time of day within subjects. A SOLAR vs SHADE trial was always completed in the same environment sequentially (one followed the other). For example, if a SOLAR trial was conducted at 25°C, 80% Rh, the next trial would be in the same environment, but in SHADE. All data collected in this study was used for modelling purposes (see Figure 3 main text).
Individual trials completed by each participant.

Table S1. Trials performed by each participant. Apart from the reference/control condition, which was completed once, a cross denotes that a participant has completed both a shaded and solar trial within the specified environment.

### Low clothing coverage

| $T_a$ | Rh | 1 | 3 | 5 | 7 | 8 | 10 | 11 |
|-------|----|---|---|---|---|---|----|----|
| 15    | 50 | x | x | x | x | x | x  | 7  |
| 25    | 20 | x | x | x | x |    |    | 10 |
| 30    | 80 | x | x | x | x | x |    | 14 |
| 35    | 20 | x | x | x | x |    |    | 10 |
| 40    | 80 | x | x | x | x |    |    | 8  |
| 45    | 20 | x |    |    |    |    |    | 4  |

Total trials: $11 + 15 + 7 + 13 + 11 + 5 + 11 = \sum = 73$

### High clothing coverage

| $T_a$ | Rh | 2 | 3 | 4 | 6 | 9 | 12 | 13 |
|-------|----|---|---|---|---|---|----|----|
| 15    | 50 | x | x | x | x | x | x  | 7  |
| 25    | 20 | x | x | x | x | x |    | 8  |
| 30    | 80 | x | x | x | x | x |    | 12 |
| 35    | 20 | x | x | x | x | x |    | 10 |
| 40    | 80 | x |    |    |    |    |    | 4  |
| 45    | 20 | x | x | x | x | x |    | 12 |

Total trials: $5 + 15 + 7 + 5 + 15 + 11 + 11 = \sum = 69$
Individual physical work capacity responses

Figure S2. Individual physical work capacity responses in each condition, with and without solar, in low clothing coverage (shown in panel b).
Figure S3. Individual physical work capacity responses in each condition, with and without solar, in high clothing coverage (shown in panel b).
Figure S4. Temporal rectal (core) and mean skin temperature responses. Data are presented as the average score at each time point. Error bars were omitted to increase clarity in data presentation.