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# Supplementary Materials: Kinematic and Dynamic Scaling of Copepod Swimming

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**Table S1.** Kinematic parameters of the escape reaction in calanoid and cyclopoid copepods at 20–22 °C. $L_{pr}$: prosome length, cm; $U_{max}$: maximum instantaneous speed, cm s$^{-1}$; $U_{min}$: minimum instantaneous speed, cm s$^{-1}$, $D_{st}$: duration of stroke phase of kick (s); $S_{st}$: travel distance over stroke phase, cm; $U_{mst}$: mean speed, in stroke (cm s$^{-1}$), $D_{kick}$: total duration of kick (s); $S_{kick}$: total distance of stroke, cm; $U_{kick}$: mean speed of kick, cm s$^{-1}$. $N$: number of measurements. Average values are means ± standard deviation. The literature data included in the table are obtained with a high-speed registration of at least 500 fps.

| Species | $L_{pr.}$ cm | $N$ | $U_{max}$, cm s$^{-1}$ | $U_{min}$, cm s$^{-1}$ | $D_{st}$, s | $S_{st}$, cm | $U_{mst}$, cm s$^{-1}$ | $D_{kick}$, s | $S_{kick}$, cm | $U_{kick}$, cm s$^{-1}$ | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Oithona davisae* | 0.028 | 41 | 17.5 ± 6.3 | 4.3 ± 0.9 | 0.0059 ± 0.0012 | 0.061 ± 0.016 | 11.0 ± 4.1 | 0.0081 ± 0.0023 | 0.065 ± 0.016 | 10.0 ± 3.7 | Present data |
| *Oithona nana* | 0.031 | 25 | 21.4 ± 2.5 | 2.0 ± 1.0 | 0.0059 ± 0.0009 | 0.065 ± 0.012 | 11.6 ± 1.6 | 0.0076 ± 0.0009 | 0.074 ± 0.012 | 10.1 ± 1.2 | |
| *Oithona similis* | 0.045 | 35 | | | | | | 0.0077 ± 0.0011 | 0.093 ± 0.014 | 12.1 ± 2.3 | |
| *Paracalanus parvus* | 0.06 | 30 | 20.8 ± 3.9 | 5.7 ± 3.3 | 0.0037 ± 0.0007 | 0.058 ± 0.011 | 15.6 ± 3.2 | 0.0066 ± 0.0011 | 0.077 ± 0.013 | 11.9 ± 2.5 | |
| *Pseudodiaptomus marinus* | 0.082 | 17 | 56.6 ± 7.7 | 21.5 ± 5.0 | 0.0044 ± 0.0004 | 0.178 ± 0.022 | 40.6 ± 4.6 | 0.0075 ± 0.0008 | 0.238 ± 0.033 | 31.9 ± 3.9 | |
| *Eurytemora affinis* | 0.08 | 13 | 38.7 ± 5.2 | 7.5 ± 3.5 | 0.0053 ± 0.008 | 0.135 ± 0.018 | 26.8 ± 3.5 | 0.0083 ± 0.0012 | 0.182 ± 0.028 | 21.9 ± 2.7 | |
| *Acartia clausi* | 0.089 | 29 | 48.3 ± 9.9 | 12.5 ± 5.0 | 0.0041 ± 0.0008 | 0.130 ± 0.033 | 32.3 ± 6.6 | 0.0062 ± 0.0013 | 0.170 ± 0.039 | 28.1 ± 6.0 | |
| *Acartia tonsa* | 0.085 | 9 | 54.5 ± 4.4 | 16.6±2.6 | 0.0037 ± 0.0004 | 0.129 ± 0.021 | 35.9 ± 3.3 | 0.0059 ± 0.0008 | 0.176 ± 0.022 | 30.2 ± 3.2 | |
| *Centropages ponticus* | 0.084 | 5 | 27.2 ± 8.1 | 10.8 ± 4.1 | 0.0061 ± 0.0009 | 0.124 ± 0.036 | 20.4 ± 5.5 | 0.0105 ± 0.0004 | 0.177 ± 0.052 | 16.9 ± 4.7 | |
| *Pseudocalanus elongatus* | 0.086 | 17 | 36.0 ± 4.5 | 8.3 ± 2.1 | 0.0050 ± 0.0006 | 0.105 ± 0.042 | 23.3 ± 3.2 | 0.0082 ± 0.0010 | 0.163 ± 0.037 | 19.8 ± 2.8 | |
| *Centropages typicus* | 0.112 | 14 | 39.8 ± 6.1 | 10.4 ± 3.8 | 0.0074 ± 0.0017 | 0.193 ± 0.045 | 26.5 ± 5.6 | 0.0120 ± 0.0031 | 0.256 ± 0.051 | 22.1 ± 5.4 | |
| *Limnocalanus macrurus* | 0.19 | 18 | 55.1 ± 11.6 | 6.7 ± 2.9 | 0.0103 ± 0.0024 | 0.320 ± 0.064 | 32.1 ± 7.6 | 0.0220 ± 0.0065 | 0.544 ± 0.108 | 25.5 ± 4.7 | |
| *Pontella mediterranea* | 0.21 | 19 | 74.2 ± 24.6 | 23.2 ± 8.6 | 0.0054 ± 0.0014 | 0.287 ± 0.086 | 55.7 ± 19.4 | 0.0112 ± 0.0025 | 0.469 ± 0.135 | 44.0 ± 14.6 | |
| *Anomalocera patersoni* | 0.26 | 18 | 88.01 ± 8.9 | 24.6 ± 8.9 | 0.0055 ± 0.0009 | 0.365 ± 0.119 | 65.5 ± 14.2 | 0.0095 ± 0.0014 | 0.532 ± 0.102 | 57.1 ± 13.7 | |
| *Calanus helgolandicus* | 0.27 | 16 | 73.81 ± 8.3 | 28.3 ± 9.8 | 0.0087 ± 0.0026 | 0.433 ± 0.074 | 54.4 ± 18.2 | 0.0150 ± 0.0050 | 0.629 ± 0.110 | 45.8 ± 15.4 | |
| *Oncaea conifera* | 0.08 | 6 | | | 0.0082 ± 0.0027 | 0.131 ± 0.030 | 16.9 ± 1.9 | 0.0082 ± 0.0025 | 0.204 ± 0.021 | 14.7 ± 2.4 | [1] |
| *Corycaeus limbatus* | 0.07 | 4 | | | | | | 0.0083 | 0.095 | 11.3 | |
| *Pseudocalanus elongatus* | 0.09 | 9 | 36.4 ± 6.1 | | 0.0035 ± 0.0007 | 0.089 ± 0.016 | 25.7 ± 4.9 | 0.0068 ± 0.0007 | 0.142 ± 0.025 | 21.2 ± 4.7 | |
| *Undinopsis similis* | 0.1 | 4 | | | | | | 0.0137 ± 0.0027 | 0.134 ± 0.013 | 9.7 ± 3.5 | |
| *Pleuromamma abdominalis* | 0.24 | 10 | | | | | | 0.0147 ± 0.0002 | 0.386 ± 0.042 | 25.0 ± 1.9 | |
| *Euchaeta media* | 0.24 | 5 | | | 0.0056 ± 0.0008 | 0.132 ± 0.028 | 23.3 ± 4.1 | 0.0121 ± 0.0013 | 0.220 ± 0.029 | 18.3 ± 1.8 | |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| -''- | 0.29 | 3 | | | | | | 0.0128 ± 0.0038 | 0.432 ± 0.047 | 36.1 ± 2.2 | |
| *Euchirella messinensis* | 0.32 | 4 | 83.8 ± 22.0 | 16.4 ± 3.8 | 0.0089 ± 0.0002 | 0.447 ± 0.020 | 50.1 ± 0.8 | 0.0153 ± 0.0008 | 0.708 ± 0.026 | 41.5 ± 4.3 | |
| -''- | 0.39 | 3 | 116.0 ± 6.8 | 45.0 ± 5.6 | 0.00857 ± 0.001 | 0.631 ± 0.131 | 75.3 ± 5.9 | 0.0153 ± 0.0006 | 1.112 ± 0.105 | 71.5 ± 4.5 | |
| *Anomalocera patersoni* (28°C) | 0.38 | 5 | 102.9 ± 14.6 | 34.2 ± 9.8 | 0.0041 ± 0.001 | 0.291 ± 0.101 | 71.5 ± 7.9 | 0.0061 ± 0.0010 | 0.404 ± 0.108 | 64.9 ± 8.3 | |
| *Oithona davisae* | 0.03 | 68 | 19.8 ± 4.2 | | 0.0048 ± 0.001 | 0.058 ± 0.012 | | 0.0074 | 0.075 ± 0.016 | 10.1 ± 2.1 | [2,3] |
| *Acartia tonsa* | 0.074 | 59 | 37.8 ± 9.6 | | 0.0044 ± 0.0007 | 0.120 ± 0.020 | | 0.0076 | 0.185 ± 0.024 | 24.1 ± 5.3 | |
| *Calanus finmarchicus* (12 °C) | 0.3 | | 75.6 | | | | | 0.013 | | | |
| *Acartia tonsa* | 0.083 | 55 | 44.6 ± 15 | | | | | | | 25.6 ± 10 | [4–6] |
| *Acartia lilljeborgii* | 0.103 | 56 | 48.6 ± 11.7 | | | | | | | 23.2 ± 7.6 | |
| *Temora turbinata* | 0.074 | 49 | 46.3 ± 5.3 | | | | | | | 25.3 ± 3.3 | |
| *Paracalanus parvus* | 0.066 | 30 | 40.7 ± 2.9 | | | | | | | 22.7 ± 2.0 | |
| *Temora turbinata* | 0.074 | | 21.5 ± 5.5 | | | | | | | 10.3 ± 5.6 | |
| *Centropages furcatus* | 0.1 | | 20.8 ± 1.7 | | | | | | | 11.5 ± 1.6 | |
| *Subeucalanus pileatus* | 0.205 | | 45.3 ± 3.2 | | | | | | | 25.6 ± 2.5 | |
| *Pontella marplatensis* | 0.23 | | 47.7 ± 17.2 | | | | | | | 24.3 ± 9.4 | |
| *Parvocalanus crassirostris* | 0.039 | | 17 | | | | | 0.0034 ± 0.004 | 0.13 ± 0.01 | | [7] |
| *Eurytemora affinis* | 0.077 | | 34.2 ± 4.4 | | | | | 0.0101 ± 0.001 | 0.21 ± 02 | 18.1 ± 10.2 | |
| *Acartia hudsonica* | 0.075 | 14 | 38.7 ± 10.0 | | | | | | | | [8] |
| *Tortanus discaudatus* | 0.122 | 21 | 53.6 ± 5.7 | | | | | | | | |
| *Centropages hamatus* | 0.099 | 9 | 38.6 ± 2.8 | | | | | | | | |
| *Temora longicornis* | 0.059 | 4 | 26.2 ± 2.8 | | | | | | | | |
| *Euchaeta elongata*, 8 °C | 0.41 | 8 | | | | | | | | 31.4 ± 4.8 | [9] |
| *Euchaeta rimana*, 23 °C | 0.24 | 7 | | | | | | | | 27.6 ± 3.2 | |
| *Paraeuchaeta elongata* | 0.4 | | 120 | | | | | | | | [10] |
| *Calanus pacificus* | 0.22 | 7 | 53 ± 7 | | | | | | | | |
| *Bestiolina similis* | 0.054 | | 26.3 ± 5.5 | | | | | | | | [11] |

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