**Extended data Figure 2-1:** The Posterior Touch Response Index (PTRI) values at 3 h and 24 h postaxotomy in wild type worms at different life stages (L4-A5). The recovery index values were obtained by normalizing the PTRI values at 24 h with respect to that at 3 h. The experimental group underwent a swimming session of 90 min duration.

|  |  |  |
| --- | --- | --- |
| **L4 stage** | | |
| **Non-Swimming control** | | |
| **PTRI @ 3h** | **PTRI @ 24h** | **Recovery Index** |
| 0.6 | 0.7 | 1.2 |
| 0.6 | 0.6 | 1.0 |
| 0.6 | 0.8 | 1.3 |
| 0.5 | 0.8 | 1.6 |
| 0.7 | 0.9 | 1.3 |
| 0.6 | 0.9 | 1.5 |
| 0.6 | 0.8 | 1.3 |
| 0.5 | 0.7 | 1.4 |
| 0.7 | 0.9 | 1.3 |
| 0.6 | 0.4 | 0.7 |
| 0.5 | 0.9 | 1.8 |
| 0.7 | 0.5 | 0.7 |
| 0.5 | 0.4 | 0.8 |
| 0.5 | 0.3 | 0.6 |
| 0.4 | 0.8 | 2.0 |
| 0.4 | 0.3 | 0.8 |
| 0.4 | 0.8 | 2.0 |
| 0.6 | 0.6 | 1.0 |
| 0.7 | 0.6 | 0.9 |
| 0.6 | 0.7 | 1.2 |
| 0.6 | 0.8 | 1.3 |
| 0.5 | 0.4 | 0.8 |

|  |  |  |
| --- | --- | --- |
| **L4 stage** | | |
| **Swimming group** | | |
| **PTRI @ 3h** | **PTRI @ 24h** | **Recovery Index** |
| 0.5 | 0.7 | 1.4 |
| 0.3 | 0.7 | 2.3 |
| 0.4 | 0.7 | 1.8 |
| 0.5 | 0.9 | 1.8 |
| 0.7 | 0.9 | 1.3 |
| 0.5 | 0.7 | 1.4 |
| 0.5 | 0.7 | 1.4 |
| 0.4 | 0.8 | 2.0 |
| 0.6 | 0.7 | 1.2 |
| 0.3 | 0.7 | 2.3 |
| 0.6 | 0.9 | 1.5 |
| 0.2 | 0.6 | 3.0 |
| 0.5 | 0.6 | 1.2 |
| 0.7 | 0.6 | 0.9 |
| 0.3 | 0.6 | 2.0 |
| 0.7 | 0.7 | 1.0 |
| 0.3 | 0.7 | 2.3 |
| 0.3 | 0.9 | 3.0 |
| 0.3 | 0.9 | 3.0 |
| 0.7 | 0.7 | 1.0 |
| 0.6 | 0.7 | 1.2 |
| 0.7 | 0.8 | 1.1 |

|  |  |  |
| --- | --- | --- |
| **A1 Stage** | | |
| **Non-Swimming control** | | |
| **PTRI @ 3h** | **PTRI @ 24h** | **Recovery Index** |
| 0.6 | 0.6 | 1.0 |
| 0.5 | 0.6 | 1.2 |
| 0.5 | 0.4 | 0.8 |
| 0.6 | 0.5 | 0.8 |
| 0.7 | 0.6 | 0.9 |
| 0.8 | 0.6 | 0.8 |
| 0.6 | 0.5 | 0.8 |
| 0.5 | 0.7 | 1.4 |
| 0.6 | 0.6 | 1.0 |
| 0.5 | 0.6 | 1.2 |
| 0.5 | 0.6 | 1.2 |
| 0.6 | 0.8 | 1.3 |
| 0.5 | 0.5 | 1.0 |
| 0.4 | 0.6 | 1.5 |
| 0.3 | 0.5 | 1.7 |
| 0.8 | 0.8 | 1.0 |
| 0.8 | 0.5 | 0.6 |
| 0.5 | 0.6 | 1.2 |
| 0.7 | 0.7 | 1.0 |
| 0.7 | 0.8 | 1.1 |
| 0.7 | 0.7 | 1.0 |
| 0.7 | 0.5 | 0.7 |

|  |  |  |
| --- | --- | --- |
| **A1 stage** | | |
| **Swimming group** | | |
| **PTRI @ 3h** | **PTRI @ 24h** | **Recovery index** |
| 0.5 | 0.7 | 1.4 |
| 0.5 | 0.8 | 1.6 |
| 0.6 | 0.8 | 1.3 |
| 0.7 | 0.8 | 1.1 |
| 0.8 | 0.9 | 1.1 |
| 0.6 | 0.6 | 1.0 |
| 0.3 | 0.7 | 2.3 |
| 0.6 | 0.7 | 1.2 |
| 0.7 | 0.6 | 0.9 |
| 0.3 | 0.7 | 2.3 |
| 0.3 | 0.7 | 2.3 |
| 0.6 | 0.8 | 1.3 |
| 0.3 | 0.7 | 2.3 |
| 0.4 | 0.8 | 2.0 |
| 0.3 | 0.5 | 1.7 |
| 0.5 | 0.8 | 1.6 |
| 0.5 | 0.7 | 1.4 |
| 0.5 | 0.9 | 1.8 |
| 0.7 | 0.7 | 1.0 |
| 0.6 | 0.6 | 1.0 |
| 0.5 | 0.7 | 1.4 |
| 0.6 | 0.6 | 1.0 |

|  |  |  |
| --- | --- | --- |
| **A3 stage** | | |
| **Non-Swimming control** | | |
| **PTRI @ 3h** | **PTRI @ 24h** | **Recovery Index** |
| 0.5 | 0.6 | 1.2 |
| 0.7 | 0.6 | 0.9 |
| 0.6 | 0.5 | 0.8 |
| 0.5 | 0.6 | 1.2 |
| 0.6 | 0.6 | 1.0 |
| 0.7 | 0.5 | 0.7 |
| 0.4 | 0.5 | 1.3 |
| 0.4 | 0.5 | 1.3 |
| 0.6 | 0.5 | 0.8 |
| 0.5 | 0.4 | 0.8 |
| 0.6 | 0.6 | 1.0 |
| 0.7 | 0.5 | 0.7 |
| 0.6 | 0.7 | 1.2 |
| 0.6 | 0.9 | 1.5 |
| 0.5 | 0.4 | 0.8 |
| 0.3 | 0.4 | 1.3 |
| 0.4 | 0.5 | 1.3 |
| 0.4 | 0.5 | 1.3 |
| 0.4 | 0.3 | 0.8 |
| 0.4 | 0.4 | 1.0 |

|  |  |  |
| --- | --- | --- |
| **A3 stage** | | |
| **Swimming group** | | |
| **PTRI @ 3h** | **PTRI @ 24h** | **Recovery Index** |
| 0.5 | 0.9 | 1.8 |
| 0.5 | 0.8 | 1.6 |
| 0.6 | 0.8 | 1.3 |
| 0.5 | 0.8 | 1.6 |
| 0.6 | 0.7 | 1.2 |
| 0.7 | 0.7 | 1.0 |
| 0.4 | 0.7 | 1.8 |
| 0.4 | 0.9 | 2.3 |
| 0.6 | 0.9 | 1.5 |
| 0.5 | 0.7 | 1.4 |
| 0.6 | 0.7 | 1.2 |
| 0.7 | 0.8 | 1.1 |
| 0.6 | 0.5 | 0.8 |
| 0.3 | 0.7 | 2.3 |
| 0.4 | 0.8 | 2.0 |
| 0.3 | 0.5 | 1.7 |
| 0.3 | 0.7 | 2.3 |
| 0.2 | 0.4 | 2.0 |
| 0.2 | 0.3 | 1.5 |
| 0.3 | 0.6 | 2.0 |
| 0.4 | 0.5 | 1.3 |
| 0.4 | 0.8 | 2.0 |

|  |  |  |
| --- | --- | --- |
| **A4 stage** | | |
| **Non-swimming control** | | |
| **PTRI @ 3h** | **PTRI @ 24h** | **Recovery index** |
| 0.7 | 0.6 | 0.9 |
| 0.6 | 0.5 | 0.8 |
| 0.6 | 0.6 | 1.0 |
| 0.6 | 0.6 | 1.0 |
| 0.8 | 0.7 | 0.9 |
| 0.6 | 0.6 | 1.0 |
| 0.7 | 0.6 | 0.9 |
| 0.6 | 0.5 | 0.8 |
| 0.6 | 0.5 | 0.8 |
| 0.6 | 0.6 | 1.0 |
| 0.6 | 0.5 | 0.8 |
| 0.6 | 0.5 | 0.8 |
| 0.5 | 0.6 | 1.2 |
| 0.6 | 0.6 | 1.0 |
| 0.5 | 0.7 | 1.4 |
| 0.5 | 0.4 | 0.8 |
| 0.4 | 0.5 | 1.3 |
| 0.6 | 0.4 | 0.7 |
| 0.5 | 0.5 | 1.0 |
| 0.7 | 0.7 | 1.0 |
| 0.5 | 0.5 | 1.0 |
| 0.7 | 0.6 | 0.9 |

|  |  |  |
| --- | --- | --- |
| **A4 stage** | | |
| **Swimming group** | | |
| **PTRI @ 3h** | **PTRI @ 24h** | **recovery index** |
| 0.7 | 0.8 | 1.1 |
| 0.3 | 0.7 | 2.3 |
| 0.6 | 0.8 | 1.3 |
| 0.6 | 1 | 1.7 |
| 0.5 | 0.7 | 1.4 |
| 0.6 | 0.8 | 1.3 |
| 0.7 | 0.8 | 1.1 |
| 0.6 | 0.6 | 1.0 |
| 0.6 | 0.7 | 1.2 |
| 0.6 | 0.5 | 0.8 |
| 0.5 | 0.7 | 1.4 |
| 0.6 | 0.8 | 1.3 |
| 0.5 | 0.6 | 1.2 |
| 0.6 | 0.6 | 1.0 |
| 0.5 | 0.7 | 1.4 |
| 0.3 | 0.6 | 2.0 |
| 0.4 | 0.4 | 1.0 |
| 0.3 | 0.8 | 2.7 |
| 0.5 | 0.7 | 1.4 |
| 0.4 | 0.7 | 1.8 |
| 0.7 | 0.7 | 1.0 |
| 0.6 | 0.7 | 1.2 |
| 0.6 | 0.8 | 1.3 |

|  |  |  |
| --- | --- | --- |
| **A5 stage** | | |
| **Non-Swimming control** | | |
| **PTRI @ 3h** | **PTRI @ 24h** | **Recovery Index** |
| 0.4 | 0.4 | 1.0 |
| 0.4 | 0.6 | 1.5 |
| 0.3 | 0.4 | 1.3 |
| 0.5 | 0.4 | 0.8 |
| 0.5 | 0.4 | 0.8 |
| 0.4 | 0.7 | 1.8 |
| 0.6 | 0.5 | 0.8 |
| 0.4 | 0.5 | 1.3 |
| 0.4 | 0.2 | 0.5 |
| 0.7 | 0.5 | 0.7 |
| 0.5 | 0.7 | 1.4 |
| 0.5 | 0.6 | 1.2 |
| 0.4 | 0.3 | 0.8 |
| 0.4 | 0.2 | 0.5 |
| 0.5 | 0.3 | 0.6 |
| 0.8 | 0.8 | 1.0 |
| 0.6 | 0.6 | 1.0 |
| 0.8 | 0.9 | 1.1 |
| 0.8 | 0.5 | 0.6 |
| 0.7 | 0.7 | 1.0 |
| 0.5 | 0.4 | 0.8 |
| 0.6 | 0.7 | 1.2 |
| 0.7 | 0.6 | 0.9 |
| 0.6 | 0.6 | 1.0 |

|  |  |  |
| --- | --- | --- |
| **A5 stage** | | |
| **Swimming group** | | |
| **PTRI @ 3h** | **PTRI @ 24h** | **Recovery index** |
| 0.4 | 0.5 | 1.3 |
| 0.4 | 0.4 | 1.0 |
| 0.3 | 0.6 | 2.0 |
| 0.5 | 0.6 | 1.2 |
| 0.5 | 0.9 | 1.8 |
| 0.4 | 0.7 | 1.8 |
| 0.6 | 0.5 | 0.8 |
| 0.4 | 0.5 | 1.3 |
| 0.4 | 0.5 | 1.3 |
| 0.7 | 0.5 | 0.7 |
| 0.5 | 0.5 | 1.0 |
| 0.5 | 0.5 | 1.0 |
| 0.3 | 0.5 | 1.7 |
| 0.4 | 0.5 | 1.3 |
| 0.3 | 0.5 | 1.7 |
| 0.5 | 0.5 | 1.0 |
| 0.4 | 0.6 | 1.5 |
| 0.6 | 0.5 | 0.8 |
| 0.9 | 0.7 | 0.8 |
| 0.8 | 0.8 | 1.0 |
| 0.7 | 0.8 | 1.1 |
| 0.5 | 0.6 | 1.2 |
| 0.7 | 0.5 | 0.7 |
| 0.6 | 0.5 | 0.8 |
| 0.7 | 0.6 | 0.9 |