



Figure S1. Representation of the nestling period of each chick (N=36) from hatch until fledging (n=34) or death (n=2). Chicks are identified by nest identification and hatching order (a,b,c: respectively first, second, third hatched). If the hatching order was unknown (the first two chicks hatched overnight), chicks were assigned 'ab'. The colors correspond to the dietary treatment groups (sugar water = orange, transient oil = green, chronic oil = blue). Bars with a black outline represent the subsample of 12 chicks sacrificed for brain analysis (4 per dietary treatment).

Table S1. Fatty acid profile of the Menhaden fish oil used to supplement chicks. Menhaden fish oil contains almost twice as much eicosapentaenoic acid (EPA) as docosahexaenoic acid (DHA). In comparison to its quantity of n3-LCPUFAs, Menhaden fish oil is a poor source of linoleic acid (LA), α -linolenic acid (ALA), and arachidonic acid (AA). The concentration of each fatty acid is expressed as its relative concentration (percentage of total identified fatty acids).

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Table S2. Derivation of the quantity of fish oil given to ring-billed gull chicks each day between hatching and fledging, based on their daily energetic requirements and the assumption that the diet of a ring-billed gull comprises 80% alewife.

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Table S3. Comparisons between the fatty acid profiles of the red blood cells (RBCs) and cerebral hemispheres of chicks. The fatty acid concentrations are expressed as relative concentration (percentage of total identified fatty acids) for each tissue at each age (15 and 36 days posthatch for red blood cells, 42 days posthatch for brain), in each of the three dietary treatment groups (sugar water control, transient oil, chronic oil).

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