Research article

Impaired spatial memory in adult vitamin D deficient BALB/c mice is associated with reductions in spine density, nitric oxide, and neural nitric oxide synthase in the hippocampus

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Supplementary information

Supplementary Table S1 Composition of Speciality feed Diet (SF09-088 AIN93G Rodent Diet)

Supplementary Table S1.1. Calculated Nutritional Parameters.

| Nutrient                        | Amount   |
|---------------------------------|----------|
| Protein                         | 19.40%   |
| Total Fat                       | 7.00%    |
| Crude Fibre                     | 4.70%    |
| AD Fibre                        | 4.70%    |
| Digestible Energy               | 16.1 MJ/Kg |
| % Total calculated digestible energy from lipids | 15.90%   |
| % Total calculated digestible energy from protein | 21.10%   |
### Supplementary Table S1.2. Base components.

| Name of the Ingredients                  | Rate of inclusion |
|------------------------------------------|-------------------|
| Casein (Acid)                            | 200 g/Kg          |
| Sucrose                                  | 100 g/Kg          |
| Soya Bean Oil                            | 70 g/Kg           |
| Cellulose                                | 50 g/Kg           |
| Maize Starch                             | 404 g/Kg          |
| Dextrinised Starch                       | 132 g/Kg          |
| DL Methionine                            | 3.0 g/Kg          |
| Calcium Carbonate                        | 13.1 g/Kg         |
| Sodium Chloride                          | 2.6 g/Kg          |
| AIN93 Trace Minerals                     | 1.4 g/Kg          |
| Potassium Citrate                        | 2.5 g/Kg          |
| Potassium Dihydrogen Phosphate           | 6.9 g/Kg          |
| Potassium Sulphate                       | 1.6 g/Kg          |
| Choline Chloride (75%)                   | 4.1 g/Kg          |
| Oxicap E2                                | 0.14 g/Kg         |
| AIN93 Vitamins                           | 15 g/Kg           |
| Vitamin K 0.23%                          | 0.87 g/Kg         |

### Supplementary Table S1.3. Calculated total vitamins.

| Name of the Vitamin                  | Rate of inclusion |
|--------------------------------------|-------------------|
| Vitamin A (Retinol)                  | 6000 IU/Kg        |
| Vitamin D (Cholecalciferol)#         | None added (Deficient) |
|                                      | 1500 IU/Kg (Control) |
| Vitamin E (a Tocopherol acetate)     | 115 mg/Kg         |
| Vitamin K (Menadione)                | 3.5 mg/Kg         |
| Vitamin C (Ascorbic acid)            | None added        |
| Vitamin B1 (Thiamine)                | 9.1 mg/Kg         |
| Vitamin B2 (Riboflavin)              | 9.3 mg/Kg         |
| Niacin (Nicotinic acid)              | 45 mg/Kg          |
| Vitamin B6 (Pyridoxine)              | 11 mg/Kg          |
| Pantothenic acid                     | 24.5 mg/Kg        |
| Biotin                               | 300 µg/Kg         |
| Folic acid                           | 3 mg/Kg           |
| Vitamin B12 (Cyanocobalamin)         | 152 µg/Kg         |
| Choline                              | 2380 mg/Kg        |

#Vitamin D was not given to the Adult vitamin D deficient mice for 10 weeks. However, control mice received 1500 IU/Kg for the same duration.
### Supplementary Table S1.4. Calculated Amino Acids.

| Name of the Amino acids | Rate of inclusion |
|-------------------------|-------------------|
| Valine                  | 1.26%             |
| Leucine                 | 1.80%             |
| Isoleucine              | 0.87%             |
| Threonine               | 0.79%             |
| Methionine              | 0.84%             |
| Cystine                 | 0.05%             |
| Lysine                  | 1.49%             |
| Phenylalanine           | 0.99%             |
| Tyrosine                | 1.01%             |
| Tryptophan              | 0.27%             |
| Histidine               | 0.60%             |

### Supplementary Table S1.5. Calculated Total Minerals.

| Name of the Minerals | Rate of inclusion |
|----------------------|-------------------|
| Calcium              | 0.47%             |
| Phosphorus           | 0.35%             |
| Magnesium            | 0.08%             |
| Sodium               | 0.15%             |
| Chloride             | 0.16%             |
| Potassium            | 0.40%             |
| Sulphur              | 0.23%             |
| Iron                 | 68 mg/Kg          |
| Copper               | 7.0 mg/Kg         |
| Iodine               | 0.2 mg/Kg         |
| Manganese            | 19 mg/Kg          |
| Zinc                 | 46 mg/Kg          |
| Molybdenum           | 0.15 mg/Kg        |
| Selenium             | 0.3 mg/Kg         |
| Chromium             | 1.0 mg/Kg         |
| Fluoride             | 1.0 mg/Kg         |
| Lithium              | 0.1 mg/Kg         |
| Boron                | 2.5 mg/Kg         |
| Nickel               | 0.5 mg/Kg         |
| Vanadium             | 0.1 mg/Kg         |
**Supplementary Table S1.6. Calculated Fatty Acid Composition.**

| Name of the Minerals                        | Rate of inclusion |
|-------------------------------------------|------------------|
| Myristic Acid 14:0                        | Trace            |
| Palmitic Acid 16:0                        | 0.72%            |
| Stearic Acid 18:0                         | 0.27%            |
| Palmitoleic Acid 16:1                     | 0.01%            |
| Oleic Acid 18:                            | 1.60%            |
| Gadoleic Acid 20:1                        | 0.01%            |
| Linoleic Acid 18:2 n6                     | 3.57%            |
| a Linolenic Acid 18:3 n3                  | 0.48%            |
| Total n3                                  | 0.48%            |
| Total n6                                  | 3.57%            |
| Total Mono Unsaturated Fats               | 1.62%            |
| Total Polyunsaturated Fats                | 4.05%            |
| Total Saturated Fats                      | 0.99%            |