**S1 Table:** **Nutritional composition of the key foods on a dry matter (DM) basis for the healthy-carbohydrate diet (HCD) and Western-style diet (WSD).**

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| --- | --- | --- |
|  | **HCD** | **WSD** |
| Key foods(%) | **Rye flakes** | **Rye bread** | **Combo rolls** | **Rye pasta** | **Combo pancake** | **Potato starch** | **Smoo-thie** | **Corn-flakes** | **Toast bread** | **Spelt rolls** | **Wheat pasta** | **Wheat pancake** | **Smoo-thie** |
| DM % | 91.8 | 56.9 | 62.0 | 90.5 | 46.2 | 88.9 | 14.9 | 98.3 | 63.7 | 66.0 | 90.5 | 37.0 | 14.9 |
| Ash | 1.5 | 3.5 | 2.3 | 0.9 | 3.3 | 0.3 | 2.6 | 1.4 | 2.6 | 2.3 | 0.9 | 3.3 | 2.6 |
| Protein | 10.3 | 8.5 | 14.6 | 10.3 | 15.8 | 0.5 | 2.7 | 7.5 | 13.5 | 16.0 | 14.9 | 18.5 | 2.7 |
| Fat | 1.7 | 2.3 | 2.2 | 1.7 | 25.7 | 0.0 | 0.2 | 0.7 | 3.3 | 3.2 | 2.0 | 25.9 | 0.2 |
| DCs | 67.8 | 61.2 | 60.0 | 72.0 | 30.0 | 37.1 | 68.4 | 86.0 | 76.4 | 74.4 | 79.1 | 48.4 | 68.4 |
| Sugarsa  | 2.4 | 3.0 | 2.2 | 2.5 | 1.7 | 0.1 | 66.1 | 8.1 | 2.3 | 1.5 | 1.1 | 0.6 | 66.1 |
| Lactose | 0.0 | 0.0 | 0.0 | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.0 | 0.0 |
| DS  | 65.5 | 58.3 | 57.8 | 69.5 | 23.7 | 37.0 | 2.3 | 77.9 | 74.1 | 72.9 | 78.0 | 41.8 | 2.3 |
| NDCs  | 17.5 | 18.3 | 15.8 | 12.4 | 18.5 | 61.0 | 8.4 | 3.6 | 5.3 | 3.9 | 5.1 | 3.3 | 8.4 |
| RSenzb (RSdmsoc)  | 0.4(0.2) | 2.1(1.3) | 5.4(4.2) | 1.1(0.7) | 6.5(5.5) | 59.6(0) | 0(0) | 1.8(0.8) | 1.2(0.7) | 0.6(0.4) | 0.9(0.5) | 0.7(0.1) | 0(0) |
|  NSPs | 14.1 | 14.4 | 9.7 | 9.7 | 11.0 | 1.1 | 3.3 | 1.7 | 3.4 | 2.8 | 3.3 | 2.1 | 3.3 |
| Cellulose  | 1.0 | 1.6 | 1.9 | 0.9 | 2.1 | 0.0 | 0.9 | 0.4 | 0.5 | 0.3 | 0.3 | 0.2 | 0.9 |
| AX  | 9.1 | 8.4 | 3.4 | 5.6 | 3.3 | 0.0 | 0.4 | 0.3 | 1.7 | 1.3 | 1.8 | 0.9 | 0.4 |
|  A:X ratio | 0.67 | 0.66 | 0.79 | 0.76 | 0.82 | - | 1.68 | 1.08 | 0.86 | 0.96 | 0.90 | 0.95 | 1.68 |
| LMW NDCs  | 3.0 | 1.8 | 0.8 | 1.6 | 1.1 | 0.3 | 5.1 | 0.1 | 0.6 | 0.4 | 0.9 | 0.5 | 5.1 |
| Fructan  | 3.0 | 1.8 | 0.4 | 1.6 | 0.3 | 0.0 | 5.0 | 0.0 | 0.3 | 0.1 | 0.5 | 0.3 | 5.0 |
| AXOS | 0.0 | 0.0 | 0.4 | 0.0 | 0.7 | 0.3 | 0.2 | 0.1 | 0.3 | 0.3 | 0.4 | 0.2 | 0.2 |
| Lignin  | 1.7 | 2.0 | 1.4 | 1.4 | 1.8 | 0.4 | 1.9 | 1.1 | 0.9 | 1.1 | 0.7 | 1.2 | 1.9 |
| Total DFd | 15.8 | 16.4 | 11.1 | 11.1 | 12.8 | 1.5 | 10.3 | 4.7 | 6.2 | 5.0 | 5.8 | 4.5 | 10.3 |

A:X ratio, arabinose to xylose ratio; AX, arabinoxylan; AXOS, arabinoxylan oligosaccharides; DCs, digestible carbohydrates; DF, dietary fibre; DS, digestible starch; LMW, low molecular weight; NDCs, non-digestible carbohydrates; NSPs, non-starch polysaccharides; RS, resistant starch. aCalculated as the sum of glucose, fructose and sucrose. bRSenz was determined by Megazyme assay (Megazyme International). cRSDMSO was determined as described by Bach Knudsen (35). dCalculated as the sum of non-digestible carbohydrates and lignin.