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Reply to TR Hill and I Kyriazakis

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Reply to the Letter to the Editor for "A 25-hydroxycholecalciferol-fortified dairy drink is more effective at raising a marker of postprandial vitamin D status than cholecalciferol in men with suboptimal vitamin D status." (Manuscript doi: 10.3945/jn.117.254789) *by*

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We thank Drs Thomas R Hill and llias Kyriazakis for their comments on our paper. We agree that a clean label approach for food vitamin D enrichment is favoured by the consumer and the low levels of vitamin D_3 and 25(OH) D_3 naturally present in animal derived foods, such as eggs and milk, can be significantly increased by supplemental additions of vitamin D_3 and 25(OH) D_3 to the animals' diets (biofortification) (1). However, although a statistically significant increase in vitamin D_3 and 25(OH) D_3 has been reported after biofortification at supplemental quantities in line with EU legislation (2), these changes are quantitatively trivial and would not contribute to increase in dietary vitamin D_3 intake and human vitamin D status as stated by Drs Hill and Kryiazakis (1). We confirmed this in a recent study (3) in which dairy cows' diets were supplemented either with 0.075mg/kg vitamin D_3 (control), the maximum permitted dose of vitamin D_3 (0.1mg/kg) recommended by the EU (2), or with 0.03mg/kg vitamin D_3 plus 25(OH) D_3 (0.075 mg/kg) for 8 weeks feeding from calving to early lactation. The vitamin D_3 and 25(OH) D_3 concentrations in milk from both treatments were not significantly different to the control milk or to themselves (3). For a typical milk serving of 200 ml would contribute 0.02 to 0.66 µg vitamin D (3), which well below the current UK vitamin D recommended intake of 10 µg/day (4). The authors believe that without changes to the permitted dietary supplementation levels in dairy diets, milk fortification with vitamin D, may be a more feasible strategy to increase dietary vitamin D_3 intake and ultimately increase population vitamin D status, than biofortification.

Our current finding that a dairy drink fortified with 25(OH) D_3 was more effective at raising plasma 25(OH) D_3 concentrations than dairy drink fortified with vitamin D_3 in men with suboptimal vitamin D status supported previous studies (5, 6), which demonstrates the value of 25(OH) D_3 food fortification. However this would require changes in the EU legislation before the potential advantage of this form of vitamin D can be realised for food fortification in the EU.

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