

# Dose the only information on Vitamin D<sub>3</sub> content of fish oil and fish liver oil in the Iranian scientific resource corroborate the respective international data?

Sir,

Fish liver oil is recognized as the main source of Vitamin D<sub>3</sub> in the human diet. It has yet to find a place in the Iranian dietary pattern; however, its frequent consumption is due to medicinal prescription and as a dietary supplement. Fish oil and fish liver oil have also been recognized in some recent Iranian intervention trials as a beneficial Vitamin D<sub>3</sub>-containing ingredient.<sup>[1-10]</sup> Based on the results of international studies, the concentration of Vitamin D<sub>3</sub> and its derivatives in fish liver oil falls within the range of 40-200 IU/ml.<sup>[11]</sup> Moreover, in "Krause's Food and the Nutrition Care Process," one of the most used textbook by nutritionist, the concentration of Vitamin D<sub>3</sub> in fish liver oil is reported as 1060 IU per tablespoon that is equal to 70.6 IU/ml.<sup>[12]</sup>

Overviewing the Iranian scientific literature in this filed reveals that only one study was conducted on the determination of Vitamin D<sub>3</sub> concentration in fish and fish liver oil. In this work, comparing different Vitamin D<sub>3</sub> extraction methods, the authors reported on the Vitamin D<sub>3</sub> concentration of *Caracharhinus machoti* liver oil as 0.02746 mg/ml, corresponding to 1098 IU/ml of extracted oil, and Vitamin D<sub>3</sub> concentration in 100 g of *Clupeomolla grimi* flesh as 0.1028 mg that is equivalent to 4115 IU.<sup>[13]</sup>

In the current available nutritional table used by Iranian nutritionists, which is a translated version from English, Vitamin D<sub>3</sub> concentration in fish liver oil is stated to be 210 µg that is equal to 8400 IU/100 g oil.<sup>[14]</sup> Considering specific weight of oil as 0.9 g/cm<sup>3</sup>, each milliliter of fish liver oil contains 70.6 IU Vitamin D<sub>3</sub> that is exactly the value which is presented by krouse, whereas the value mentioned in Iranian study is approximately 15 times larger than this amount.

Moreover, regarding the oil extracted from fish body, the data presented in the given nutritional table for

Vitamin D<sub>3</sub> concentration of 100 g of fish types similar to *Clupeomolla grimi* are mentioned as 13-19 µg identical to 520-760 IU<sup>[14]</sup> that is 5-8 times less than that of measured in the Iranian study.

Comparing the above-mentioned data indicates a noticeable disagreement in the Vitamin D<sub>3</sub> content of fish and fish oil between Iranian and international scientific sources. Since the higher sunshine intake, the higher Vitamin D<sub>3</sub> accumulates in the sea animal's body<sup>[15]</sup> such differences might be due to geographical difference between the origins of tested samples in the above-mentioned studies.

As in evaluation of the nutritive value of food articles, Iranian nutritionist used to use the nutritional tables from scientific resources other than the native ones, such differences could be regarded as source of error when the homemade fish oil products are used as a supplement of Vitamin D<sub>3</sub> in the recommended diets; however, to clearly address the issue, more study should be conducted on the presence and concentration of Vitamin D<sub>3</sub> in the fish oil and fish liver oil prepared in the country.

Since, in order to estimate the nutritive value of food articles, Iranian nutritionist used to use the nutritional tables from scientific resources other than the native ones, such a difference could impress a source of error when the homemade fish oil products used as a supplement of Vitamin D<sub>3</sub> in the recommended diets. However, to clearly adds the issue, more study should be performed on the presence and concentration of Vitamin D<sub>3</sub> in the fish oil and fish liver oil prepared and used in the country.

## AUTHORS CONTRIBUTIONS

MS contributed in conducting the study, approval of the final version of the manuscript, and agreed for all aspects of the work. SSM contributed in conducting the study, approval of the final version of the manuscript, and agreed for all aspects of the work. MM contributed in the conception of the work, conducting the study, revising the draft, approval of the final version of the manuscript, and agreed for all aspects of the work

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