



Freiburg Medical Laboratory Middle East (L.L.C.)

P.O. Box: 3068, Dubai - UAE, Tel: 04 396 2227, Fax: 04 396 2228

E-mail: info@fml-dubai.com, Website: www.fml-dubai.com

Physician:

Dr. M. Jaksch
Freiburg Medical Lab

Laboratory Report Online Version

Report Date: 15.11.2018

Patient Name: Sample Report Vitamin Panel

Gender: Female
Date of Birth: 01.01.1973
Nationality:
Your ID:

Test Request Code: 1811
Sample ID:
Patient IDNo: 380519

Sampling Date / Time: 15.11.2018 / 00:00
Receipt Date / Time: 15.11.2018 / 18:31

Remarks:

Insurance:

Analysis	Result	Flag	Units	Reference Range
Vitamins (Serum, light-protected)				
Folate (LIA)*	9.6		ng/ml	> 5.4
borderline 3.4 - 5.4				
Vitamin A (HPLC)*	478		ug/l	see text

Important Note:

Normal ranges for Vitamin A are discussed controversially and many laboratories are using different reference ranges.

According to the WHO, the UAE belongs to the countries with 'mild subclinical Vitamin A deficiency'.

Please also see:

http://whqlibdoc.who.int/publications/2009/9789241598019_eng.pdf.

However, we have observed 70% of patients with Vitamin A levels below 400ug/L in the local population tested. In contrast, our German Partner Laboratory (Synlab) reports only about <10% very mild Vitamin A deficiencies in the German population based on the reference range for adults of 400-1200 ug/L (according to the German/Swiss database (Hoffmann la Roche, Basel, 1983)).

In contrast, US laboratories use the following reference ranges:

0-1 month: 180 - 500 ug/L
2 months-12 years: 200 - 500 ug/L
13-17 years: 260 - 700 ug/L
>18 years: 300 - 1200 ug/L

A general consensus for clinically significant Vitamin A deficiency is levels <100 ug/L.

It is very difficult to find clear assessments and evaluations in the literature.

Note:

Our reference values are adjusted to age and gender.

Daily internal Quality Control within the required range

(according to ISO 15189).

External Quality Control available on request.

^ non-accredited parameter

* This parameter is affected by Biotin intake of >5 mg (RDI = 0.03mg)

* This investigation has been performed in a collaborating accredited laboratory (Germany).

Techn. Validation by
Med. Technologist
(Supervisor of
the Department)

Dr. Nehmat ElBanna
Specialist
Clinical Pathology (U/S)
(DHA-P-0084548)

PD Dr. med. habil. M. Jaksch
Associate Professor
Medical Director
(DHA-LS-240710)

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We therefore suggest assessing the Vitamin A values based on the above information.

Vitamin C (HPLC)*	6.5		mg/l	5.0-15.0
Niacin, Vit B3 (LCMS)*	17.8		ug/l	14.0 - 52.0
Nicotinamide, Vit B3 (LCMS)*	15.9		ug/l	10.0 - 63.0

Niacin and nicotinamide are forms of vitamin B3.

Pantoth. Acid (Vit.B5) (EIA)*	125.0		ug/l	54.0 - 159.0
Vitamin B12 (ECL)"	378		pg/ml	200 - 1000

200 - 350 pg/ml borderline
>350 - 400 pg ml acceptable
>400 pg/ml normal

We recommend the following procedure:

Vitamin B12	holoTC	MMA	Interpretation
>400 pg/ml	-	-	B12 deficiency excluded
<400 pg/ml	normal	normal	still normal B12 status
<400 pg/ml	decreased	normal	B12 deficiency (early phase)
<400 pg/ml	decreased	increased	functional B12 deficiency

holoTC = Holotranscobalamin
MMA = Methylmalonic acid

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Source:

Carmel R, Green R, Rosenblatt DS, Watkins.: Update on cobalamin, folate and homocysteine.

Hematology Am Soc Hematol Educ Program. 2003:62-81

Vitamin D (25OH), total(ECL)"	38.6	low	ng/ml	40 - 80
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Deficient:<30 Borderline: 30 - 40 Desirable >40

Source:Wacker and Holick, Vitamin D.Effects on Skeletal and Extraskelatal Health and the Need for Supplementation
Nutrients 2013;5:111-148.

Important note:

The two most important forms for detecting Vitamin D deficiency are 25-OH-Vitamin D3 and 25-OH-Vitamin D2. Vitamin D3 ("human or animal form", cholecalciferol) is mainly produced in the skin after sun exposure but can also be taken up through food; Vitamin D2 ("plant form", ergocalciferol) can be obtained only from fortified foods and supplements. Both forms are metabolized in the liver to the inactive form 25-OH-Vitamin D and stored until needed, at which point 25-OH-Vitamin D is converted in the kidney to the active 1.25-(OH)2-Vitamin D. Please note that this active form does not reflect Vitamin D deficiency as it is tightly regulated by PTH, Calcium and Phosphate. Therefore 1.25-(OH)2-Vitamin D testing is indicated in kidney disorders only (insufficiency, dialysis etc.).

The concentration of 25-OH-Vitamin D in serum reflects the stored supply of all Vitamin D (D3 and D2) and gives a good indication of the Vitamin D deficiency status of the patient. Normally, more than 95% of the measured 25-OH-Vitamin D is D3; Vitamin D2 can only be measured if Vitamin D2 supplements are being taken. Our newly evaluated test, compared with liquid chromatography/mass spectrometry (LCMS), measures the serum concentration of total 25-OH-Vitamin D (immunological method). Should you require a separate measurement of D3 and D2 levels, this can be done through our partners in Germany using LCMS.

Vitamin E (HPLC)*	12.5		mg/l	9.4 - 15.0
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Vitamin H, Biotin (EIA)*	181		ng/l	> 100
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optimal > 250 suboptimal 100 - 250 deficient < 100				
Vitamin K (LCMS)*	850		ng/l	50 - 900
Vitamins (EDTA-Blood)				
Vitamin B1 (HPLC)*	51.1		µg/l	20.0 - 100.0
Vitamin B2 (HPLC)*	178		ng/ml	75 - 300
Vitamins (EDTA-Plasma)				
Vitamin B6 (HPLC)*	55.0	high	ug/l	4.0 - 37.7

Please note that we have adjusted our reference ranges (16.01.2018)

Source: Panton et al. Vitamin B6 in plasma - sample stability and the reference limits. Scand J Clin Lab Invest. 2013.

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