A comparison of VitaWeight™ and Forceval®

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All surgical weight-loss patients need to take vitamin and minerals (micronutrient) supplements for life. Standard products, readily available at high-street pharmacies, are wholly inadequate, both in terms of the concentrations of micronutrients and in the specific formulations. In other words, they simply don’t have enough of the micronutrients and/or they have the wrong micronutrients.

Forceval® is a vitamin and mineral supplement commonly prescribed for surgical weight-loss patients in the UK and other European countries. Unfortunately, even Forceval® is inadequate in a number of important respects. The concentrations of some essential vitamins and minerals are simply inadequate for the post-surgical patient, whilst other important ingredients are missing altogether.

In Table 1, the concentration of vitamins and minerals in the VitaWeight™ formulae are compared with Forceval®. The essential differences between the two are as follows:

**Dosage**

**VitaWeight™**: the basic dosage is one multivitamin capsule plus one calcium capsule. They should be taken separately (at least a few hours apart) as the calcium may interfere with the absorption of iron1.

**Forceval®**: calcium and iron are included in the same capsule which may reduce the proportion of iron absorbed.

**Vitamin B12**

Expert guidelines for supplementation in post-surgery patients recommend 350-500 µg/day of crystalline B122.

**VitaWeight™**: 350µg in one capsule – more than 100 times that of Forceval®. The great advantage of this is that patients taking VitaWeight™ don’t need B12 injections.

**Forceval®**: 3µg in one capsule so patients will require quarterly B12 injections.

**Vitamin B1 (Thiamine)**

Vitamin B1 (Thiamine) deficiency after bariatric surgery is uncommon (0.02%), but the consequences may be extremely serious as in Wernicke-Korsakoff Syndrome (WKS). WKS has been reported after LAGB, RYGBP and BPD/DS3-5.

**VitaWeight™**: 10mg in one capsule (1000% of the RDA for Vitamin B1)

**Forceval®**: 1.2mg in one capsule
**Vitamin K**

Vitamin K1 is involved in blood coagulation, whereas K2 helps to direct calcium into bone and blood, rather than arteries, muscle or other soft tissues\(^6\). Studies now indicate that vitamin K2 also works to prevent certain cancers and bone loss\(^7\).8.

**VitaWeight™**: Vitamin K1 and K2 are included. There are several active forms of vitamin K2: MK4, MK7, MK8 and MK9 and the VitaWeight™ formula includes the MK-7 form which is the most relevant to health.

**Forceval®**: Vitamin K is not included in the Forceval® capsule.

**Vitamin D**

Vitamin D2 has a much lower potency and a shorter duration of action when compared with vitamin D3. In fact, vitamin D2 has a potency less than one-third that of vitamin D39.

**VitaWeight™**: VitaWeight™ includes the D3 (cholecalciferol) form rather than the D2 (ergocalciferol).

**Inositol**

Inositol has been shown to be closely involved in insulin signalling and increases insulin sensitivity\(^10\). In women with PCOS it has been shown to reduce testosterone, acne and hirsutism and may also reduce the risk of diabetes\(^11\),\(^12\).

**VitaWeight™**: Included within the VitaWeight™ formula

**Iron**

The ASMBS recommendations for iron dosage are 18-27mg/day\(^2\).

**VitaWeight™**: The VitaWeight™ formula has ferrous bisglycinate. This is important because the bisglycinate salt is less irritating to the gastric mucosa and therefore has significantly fewer side effects such as nausea, epigastric pain and vomiting\(^13\). In addition, we have a significantly higher dose of iron.

**Forceval®**: Iron is in the form of ferrous fumarate

**Boron**

Boron makes an important contribution to bone health both directly through its actions on osteocalcin\(^28\), but also indirectly through its effects on other vitamins and minerals such as calcium, vitamin D and magnesium\(^29\)-\(^32\).

**VitaWeight™**: The VitaWeight™ calcium capsule also includes boron.

**Forceval®**: Boron is not included
Calcium

ASMBS Guidelines specifically recommend calcium citrate as it can be taken with or without food and does not constipate. Importantly, it is the one calcium compound that does not require acid to break it down. This is relevant for post-surgery patients who may produce less acid than previously and who may also be taking acid-blocking medications (PPI’s or H2 blockers). Calcium citrate has been shown to have a better absorption profile than other calcium salts, especially calcium carbonate.

Reports of hypocalcaemia after gastric bypass are inconsistent. Some studies report perfectly normal calcium levels after several years of follow-up and one study reports normal calcium absorption. This is because if dietary calcium is not available or intestinal absorption is impaired by vitamin D deficiency, calcium homeostasis is maintained by increases in bone resorption. Recent studies have shown a possible increase in cardiovascular disease with women with daily calcium supplement intakes above 1400mg. Major reductions in calcium levels are not observed after sleeve gastrectomy or adjustable gastric banding.

Recommendations for calcium supplementation after bariatric surgery vary widely, with no consensus as to the correct dosage.

VitaWeight™: The VitaWeight™ formula has 200mg of calcium citrate, but combined with magnesium, vitamin K1 and boron to optimise bone health. Since sleeve and bypass patients are recommended to take three capsules per day, the minimum dose of calcium is 600mg. This should be monitored at intervals.

Forceval®: Does not follow the ASMBS guidelines and instead uses calcium carbonate.

Magnesium (Mg)

Magnesium is increasingly recognized as an important contributor to bone health. Apart from direct effects on the structure and the cells of the skeleton, Mg deficiency acts indirectly by affecting the homeostasis of the two master regulators of calcium homeostasis, i.e., parathyroid hormone (PTH) and 1,25(OH)2-vitamin D thus leading to hypocalcemia. A study of women with osteoporosis in Israel reported significantly increased bone mineral density with 250 mg/day of magnesium supplement when compared to a control group who did not take magnesium supplements.

VitaWeight™: VitaWeight™ has a generous concentration of magnesium (both capsules contain 30mg).
### Table 1: A comparison of micronutrients in VitaWeight™ versus Forceval®

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>VitaWeight™ (1x Multivitamin + 1x Calcium)</th>
<th>Forceval® (1 capsule)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin A</td>
<td>1250 µg (5000 IU)</td>
<td>2500 µg</td>
</tr>
<tr>
<td>Vitamin D3</td>
<td>23.75µg (750 IU)</td>
<td>10mg (400 IU)</td>
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<tr>
<td>Vitamin E</td>
<td>20mg (25 IU)</td>
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<tr>
<td>Vitamin K1</td>
<td>100µg</td>
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<tr>
<td>Vitamin K2 (M-7)</td>
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<tr>
<td>Vitamin C</td>
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<td>Thiamin B1</td>
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<td>Riboflavin B2</td>
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<td>Folic Acid B9</td>
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<td>Vitamin B12</td>
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<td>Biotin</td>
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<td>Pantothenic Acid B5</td>
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<td>Iodine</td>
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<td>Boron</td>
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</table>

≠ none present

Note that the values shown are for 1 capsule of Forceval® versus one VitaWeight™ Multivitamin capsule + 1 calcium capsule.
Scientific References


9. Armas LAG, Hollis BW and Heaney RP. Vitamin D3 Is Much Less Effective than Vitamin D3 in Humans


