

Table 3: Micronutrients of Concern in Adults Living with Obesity

| Micronutrient      | Screen for Deficiency Risks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Drug or Nutrient Interactions                                                                                                                                                                                                  |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Vitamin D</b>   | <ol style="list-style-type: none"> <li>1. Elevated adiposity</li> <li>2. Medical conditions associated with fat malabsorption: <ul style="list-style-type: none"> <li>• Crohn’s disease</li> <li>• Ulcerative colitis</li> <li>• Celiac disease</li> <li>• Liver disease</li> <li>• Cystic fibrosis</li> <li>• Short-bowel syndrome</li> </ul> </li> <li>3. Previous bariatric surgery (RYGB, SG, BPD, DS)</li> <li>4. Low intake of calcium-rich foods</li> <li>5. Limited sun-light exposure (i.e. Night-shift workers, wearing long-sleeved clothing, northern climate)</li> <li>6. Darker skin pigmentation</li> </ol>                                                    | <ul style="list-style-type: none"> <li>• Corticosteroids</li> <li>• Orlistat</li> <li>• Cholestyramine</li> <li>• Phenobarbital</li> <li>• Phenytoin</li> </ul>                                                                |
| <b>Vitamin B12</b> | <ol style="list-style-type: none"> <li>1. Elevated adiposity</li> <li>2. Medical conditions: <ul style="list-style-type: none"> <li>• IBD (Crohn’s disease, ulcerative colitis)</li> <li>• Type 2 diabetes (long-term use of metformin)</li> <li>• GERD</li> <li>• Positive Helicobacter pylori</li> <li>• Pernicious anaemia</li> <li>• Alcoholism</li> </ul> </li> <li>3. Restrictive eating patterns: <ul style="list-style-type: none"> <li>• Vegetarian eating patterns</li> <li>• VLCD/meal replacements</li> <li>• Lower carbohydrate intake</li> </ul> </li> <li>4. Previous bariatric surgery (LAGB, RYGB, SG, BPD, DS)</li> </ol>                                   | <ul style="list-style-type: none"> <li>• Metformin</li> <li>• Proton-pump inhibitors</li> </ul>                                                                                                                                |
| <b>Iron</b>        | <ol style="list-style-type: none"> <li>1. Elevated adiposity</li> <li>2. Medical conditions: <ul style="list-style-type: none"> <li>• Crohn’s disease</li> <li>• Ulcerative colitis</li> <li>• Celiac disease</li> <li>• Liver disease</li> <li>• Peptic ulcers</li> <li>• Chronic kidney disease</li> </ul> </li> <li>3. Restrictive eating patterns: <ul style="list-style-type: none"> <li>• Vegetarian eating patterns</li> <li>• Low protein intake</li> <li>• VLCD/meal replacements</li> </ul> </li> <li>4. Frequent blood donors</li> <li>5. Blood loss (menstruation, GI tract bleeding)</li> <li>6. Previous bariatric surgery (LAGB, RYGB, SG, BPD, DS)</li> </ol> | <ul style="list-style-type: none"> <li>• Interactions with calcium, polyphenols (coffee/tea)</li> <li>• Excessive zinc intake (lozenges)</li> <li>• NSAIDs</li> <li>• Proton-pump inhibitors</li> <li>• H2 blockers</li> </ul> |