**Eradication of**

*Helicobacter pylori* in Children

- *Helicobacter pylori* (*H. pylori*) is a Gram-negative spiral bacillus that colonises the luminal surface of the gastric epithelium.¹ (Figure 1)
- Infection is associated with numerous diseases such as gastritis, peptic ulceration, gastric mucosa associated lymphoid tissue lymphoma and gastric cancer.²
- *H. pylori* has also been implicated in diseases of extra-digestive origin including haematological pathologies, cardiovascular diseases and neurological disorders.²
- *H. pylori* is generally acquired in childhood.³
- In children with duodenal ulcers over 90% were infected with *H. pylori*.⁴
- The survival of *H. pylori* within the stomach relies on numerous features some of which probiotics are able to antagonise (Table 1).
- **Probiotics enhanced the efficacy of triple therapy whilst also improving tolerance to treatment.²**

**Figure 1** Probiotics can enhance the efficacy of *H. pylori* eradication therapy

**H. pylori** virulence factors
- Urease producer¹³
- Non toxic LPS (immune evasion)¹²
- Helical shape (propel through mucus)

**Probiotic anti-** *H. pylori** factors:
- Lactobacillus species capable of inhibiting urease activity¹⁰
- Lactic acid producing species capable of reducing the pH at the epithelial surface⁹
- Lactobacillus species inhibits *H. pylori* binding¹¹
Several studies demonstrate that multi-strain probiotic preparations are more effective in counteracting the growth of pathogens when compared with single strain preparations.5–8

In a double-blind, randomised, placebo controlled study in children Bio-Kult strains, taken in addition to standard triple therapy, lead to a statistically significant improvement in the eradication of H. pylori (Figure 1).9

Bio-Kult strains effectively reduce the adverse gastrointestinal affects commonly associated with antibiotic usage (Figure 2).9

Clinical research demonstrates that the augmentation of standard triple therapy with Bio-Kult strains offers the benefits of increasing the eradication rate of H. pylori whilst reducing antibiotic side effects; a finding that may also enhance compliance and therefore help to reduce antibiotic resistance (Figure 3).

### Figure 1: Bio-Kult significantly increases the eradication rate of H. pylori

<table>
<thead>
<tr>
<th>Eradication of H. pylori (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eradicated</strong></td>
</tr>
<tr>
<td>Triple Therapy + Placebo</td>
</tr>
<tr>
<td>Triple Therapy + Bio-Kult strains</td>
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</tbody>
</table>

### Figure 2: Bio-Kult strains significantly reduce triple therapy associated diarrhoea, nausea and vomiting

<table>
<thead>
<tr>
<th>Side Effect Rates (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nausea &amp; Vomiting</strong></td>
</tr>
<tr>
<td>Triple Therapy + Placebo</td>
</tr>
<tr>
<td>Triple Therapy + Bio-Kult strains</td>
</tr>
<tr>
<td>Diarrhoea</td>
</tr>
<tr>
<td>p&lt;0.05</td>
</tr>
<tr>
<td>24.24</td>
</tr>
<tr>
<td>6.06</td>
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</tbody>
</table>

### Figure 3: Bio-Kult strains significantly increase the eradication rate of H. pylori and decrease the rate of adverse effects of the triple therapy

References:

### LIVE BACTERIAL CULTURES

- **Lactobacillus casei** PXN 37
- **Lactobacillus rhamnosus** PXN 54
- **Streptococcus thermophilus** PXN 66
- **Lactobacillus acidophilus** PXN 35
- **Bifidobacterium breve** PXN 25
- **Lactobacillus delbrueckii ssp. bulgaricus** PXN 39
- **Bifidobacterium infantis** PXN 27

### OTHER INGREDIENTS

- **DHA + EPA Powder:** >1mg per sachet (Omega-3 fatty acid from fish)
- **Vitamin D3:** 2.5mcg per sachet (50% of Nutrient Reference Value)
- **Preplex®** (fructooligosaccharide (FOS) and gum acacia)

### TOTAL VIABLE COUNTS (CFU)

1 x 10⁹ CFU/sachet

### USAGE GUIDELINES

½ -1 sachet once a day mixed with milk, water or food (start with ¼ of a sachet for babies <6 months) during the antibiotic treatment and for least 2 weeks after completion of the antibiotic course