

Banatrol[®]

with Bimuno[®] Prebiotic *plus*

The first line of defense
against diarrhea. Naturally.

In-Service Guide.

Medtrition•Smart Medical Foods.



Banatrol Plus:

- A dual acting natural solution for controlling the severity and length of time patients suffer from diarrhea while increasing beneficial bacteria in the gut.
- All natural
- Gluten free
- Banatrol Plus can be administered orally or by feeding tube.



Banatrol Plus ends the Diarrhea-Constipation Cycle

- Anti-diarrheal medications act to decrease GI motility which can lead to severe constipation relieved with laxatives which leads to diarrhea treated with additional anti-diarrheal medications and so on.
- Banatrol Plus ends the cycle by effectively stopping diarrhea naturally without medication.



Diarrhea is defined as:

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- Loose or watery stools 2 or 3 times in a 24 hour period 2 or 3 days in a row.
- Banatrol Plus controls diarrhea resulting from:
 - Infectious disease - *C. diff*
 - Medications
 - Antibiotics
 - Enteral Tube Feeding
 - Inflammatory bowel disease
 - Irritable Bowel Syndrome
 - Ostomies

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There are many consequences to diarrhea

The costs of diarrhea to the individual and facility are numerous:

- Personal embarrassment
- Decreased appetite
- Increased nursing and laundry cost
- Dehydration
- Loss of skin integrity with increased risk for skin breakdown.



Banatrol Plus works like the BRAT* diet:

- Banatrol Plus does not slow gut motility like anti-diarrheal medications.
- The banana flakes are high in pectin, a soluble fiber that acts through absorption to reduce watery diarrhea to promote normalization of colonic fluid. It forms a gelatin-like substance in the intestines which increases the water content in the stool increasing bulk and thickening stool consistency but without promoting hard stools.

*Banana, Rice, Apple, Toast



Banatrol Plus is clinically proven to:

- Reduce watery diarrhea
- Increase the number of beneficial bacterial in the gut
- Reduce the amount of harmful bacteria
- Strengthen the immune system of elderly
- Improve Natural Killer cell activity
- Increase anti-inflammatory cytokines
- Decrease pro-inflammatory cytokines

American Journal of Clinical Nutrition 2008;88:1438-46
Modulation of the fecal microflora profile and immune function by a novel trans-galactooligosaccharide mixture (B-GOS) in healthy elderly volunteers.



Banatrol Plus contains Bimuno, a prebiotic clinically proven to:

- Increase the amount of good bacteria while crowding out harmful bacteria.
- Improve the immune system of the elderly
- Relieve the symptoms of IBS
- Improve Natural Killer cell activity

American Journal of Clinical Nutrition 2008;87: 785-9.
Prebiotic evaluation of a novel galactooligosaccharide mixture produced by the enzymatic activity of *Bifidobacterium bifidum* NCIMB 41171, in healthy humans: a randomized, double-blind, crossover, placebo-controlled intervention study.



Probiotics vs Prebiotics:

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- Probiotics are ‘live’ good bacteria that must survive the manufacturing process and the ‘battery acid’ in the digestive system to reach the intestine.
 - If 10 billion live cells are ingested, generally less than 1 billion will survive to reach the gut.
 - The gut contains 100 trillion cells. It would take 100,000 doses of 1 billion live cell probiotic to repopulate the gut.
- Prebiotics are the “food” for the gut bacteria. They are not affected by the manufacturing process or stomach acids and arrive intact in the intestine to feed the bacteria.



Bimuno works faster than other prebiotics

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- Bimuno is a smaller molecule than other prebiotics so good bacteria can feed directly on it. Bimuno has undergone extensive clinical studies which prove that it feeds only good bacteria that crowd out harmful bacteria. This enhances the immune system and develops Natural Killer cells and strengthens anti-inflammatory response.
- Other prebiotics have larger molecules than Bimuno which must first be processed by enzymes in the gut before being utilized by bacteria. Unlike Bimuno, other prebiotics feed both the good and bad bacteria.



Infectious Disease: Clostridium Difficile Infection (CDI or C. diff)

- CDI is a bacterium that causes health issues ranging from diarrhea to life-threatening inflammation of the colon.
- CDI diarrhea, even if severe, can not be treated with anti-diarrheal medication because they slow down gut motility which causes a build-up of toxin and increases the risk of bowel perforation.
- Banatrol Plus does not slow gut motility and *can be started immediately while waiting for stool test results for suspected CDI*. Banatrol Plus acts to absorb and trap *C. diff* toxin thereby reducing the bacterial load with stool elimination.



Tube Feeding Associated Diarrhea

- The most commonly reported complication of enteral tube feeding is diarrhea which occurs in up to 30% of patients on general medical and surgical wards and up to 68% of patients on intensive care units.
- Rectal tubes or bags are used to preserve skin integrity, but they significantly add to the cost of care and can cause pressure ulcers of the anal sphincter.



Antibiotic and Medication related diarrhea.

- The incidence of diarrhea associated with antibiotics such as ampicillin, cephalosporins, tetracyclines can be as high as 26%. Antibiotics kill beneficial bacteria in the gut which are responsible for stool formation.
- Many drugs, including magnesium containing antacids & sorbitol containing medications, and regular laxatives can cause acute or chronic diarrhea.
- Banatrol Plus not only stops the diarrhea but helps repopulate the good bacteria destroyed by antibiotics.



Dosing

- **Oral Dosing:** One pack of Banatrol Plus TID. Mix in water or fruit juices or moist foods such as applesauce, pudding or yogurt.
- **Tube Feeding:** One pack of Banatrol Plus every six to eight hours of tube feeding. Mix with 120 mL water and administer with flushes directly down the feeding tube. Do not mix Banatrol Plus with tube feeding formula, it will thicken and potentially clog the feeding tube. Mix with water and give with tube flushes.



Dosing

- Administer Banatrol Plus orally or through feeding tube.
- Monitor and continue use for 10 days.
- Reassess and determine need for dose adjustment and appropriate continued use based on resident's/patient's response.
- For CDI and/or antibiotic related diarrhea, Banatrol Plus should be given until antibiotic therapy is discontinued.



Suggested Policy

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- The policy of this facility is to assure normal stooling and intestinal health for residents with CDI, chronic bowel disease, ostomies and/or are receiving enteral tube feeding or antibiotic therapy.
- Banatrol Plus is provided to maintain normal stooling with the start of antibiotic therapy and to restore normal stooling for diarrhea associated with CDI, medication use, tube feeding, ostomies and chronic bowel disease.
- Banatrol Plus is provided as soon as CDI is suspected.



Banatrol Plus works!

Clinical Study

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- In a University of Pennsylvania Hospital study 57% of patients treated with banana flakes were free of diarrhea versus 24% of the medically treated patients even though three times the number of patients receiving banana flakes tested positive for CDI.

Banana Flakes Control Diarrhea in Enterally Fed Patients Clinical Research. Nutrition in Clinical Practice Vol. 12 No 2, April 1997 Elizabeth A. Emery, MS, RD, CNSD, Syed Ahmad, MD

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Case Report: Correcting tube feeding related diarrhea

- Patient Assessment – 82 year old male transferred to acute rehabilitation hospital
 - Coronary Artery Bypass Graft Patient, respiratory failure and PEG placement.
 - Per transfer chart, patient suffering from diarrhea requiring rectal bag for the past 8 weeks.
 - Rehab assessment indicates liquid stool per rectal bag with leaking stool causing a fungal intergluteal and sacral rash, 26 lb. weight loss, hyperglycemia and dehydration as noted by labs, dark tea colored urine and dry cracked lips.



Case Report: Correcting tube feeding related diarrhea

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- Rehab Intervention—Banatrol Plus 1 pack q 8 hours
 - No change in medications
 - Negative for CDI and no bowel impaction per flat plate
 - Day 3: Volume of stool decreased.
 - Day 5: No stool.
 - Day 6: Rectal Bag removed
 - Day 6 & 7: Pasty+ to soft stool.
 - Day 8: Soft formed stool.

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Banatrol Plus with Bimuno® Prebiotic

The first line of defense against diarrhea. Naturally.

Thank You!



LANCASTER, PA 17606