

# Probiotic and cranberry supplementation for preventing recurrent uncomplicated urinary tract infections in premenopausal women: a controlled pilot study

## Question:

Is a combination probiotic and cranberry supplement more effective than placebo at preventing recurrence of urinary tract infections in adult women?

## Methods:

Recurrent urinary tract infections (RUTIs):  $\geq 2$  episodes of uncomplicated acute infections in the last 6 months, or  $\geq 3$  episodes in the last 12 months.

A total of 90 subjects were randomised to treatment and 81 (90%) completed the study. Participants were randomised to receive either the active treatment (2 capsules containing 1 billion CFU of *Lactobacillus acidophilus* PXN 35, *Lactobacillus plantarum* PXN 47, 36mg cranberry proanthocyanidins, and 320 $\mu$ g vitamin A/retinyl acetate) or placebo daily for 6 months (see flow chart).

As per European Association of Urology (EAU) guidelines uncomplicated UTI was diagnosed by  $> 10^3$  cfu/mL of uropathogens in a mid-stream sample of urine in

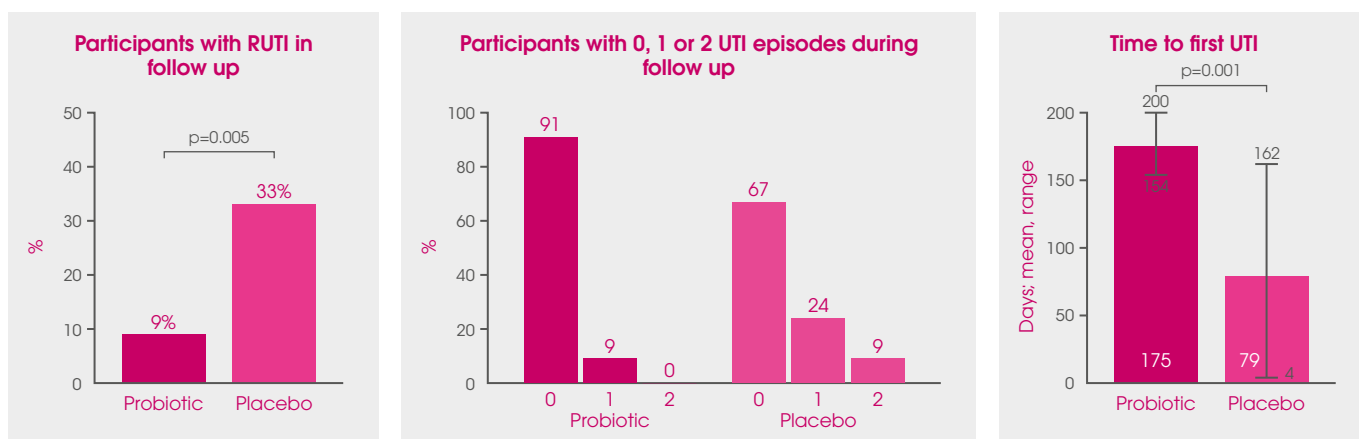
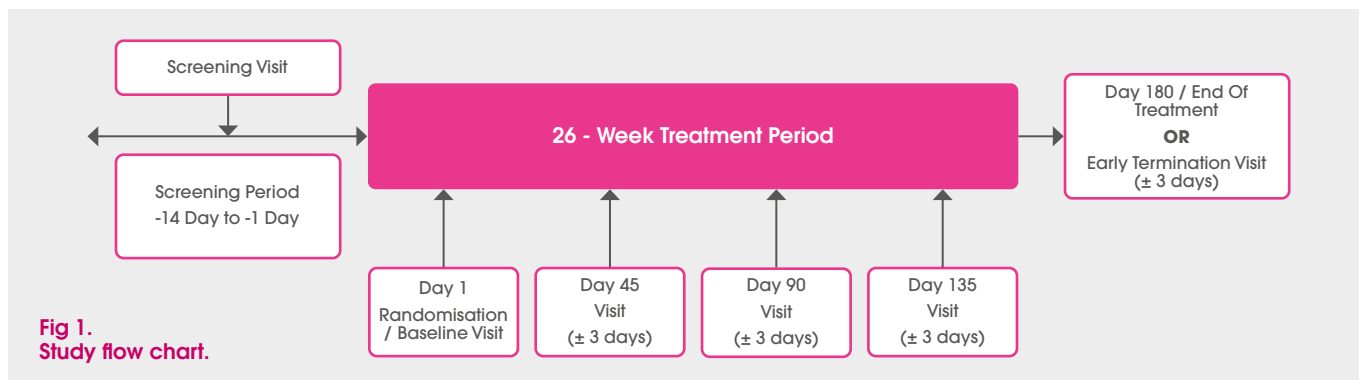
participants presenting with typical UTI symptoms (painful urination, urinary frequency, urinary urgency, abdominal pain, and bloody urine).

## Results:

- During the follow-up, 9% of the probiotic group compared to 33% of the placebo group experienced at least one episode of UTI ( $p < 0.01$ )
- The time to first UTI episode in the probiotic group was on average 96 days longer than in the placebo group (175 vs 79 days;  $p = 0.001$ )
- 72% fewer subjects in the probiotic group required treatment with antibiotics (3 vs 11;  $P < 0.05$ )
- Duration of antibiotic treatment in the probiotic group was nearly halved compared to the placebo group (4 vs 7 days;  $P = 0.09$ )

## Conclusion:

The probiotic-cranberry supplement achieved a significant reduction in rates of recurrent urinary tract infections and reduced the antibiotic exposure in adult women during a 6 month period.



Koradia P, Kapadia S, Trivedi Y, Chanchu G, Harper A. Probiotic and cranberry supplementation for preventing recurrent uncomplicated urinary tract infections in premenopausal women: a controlled pilot study. *Expert Review of Anti-infective Therapy* 2019 **17**: 733-740

Probiotic Supplement = Bio-Kult Pro-Cyan (Ingredients - Cranberry extract (*Vaccinium macrocarpon*), bulking agent (microcrystalline cellulose), vegetable capsule (hydroxypropyl methylcellulose), *Lactobacillus acidophilus* PXN® 35™, *Lactobacillus plantarum* PXN® 47™ (milk, soya), vitamin A (retinyl acetate).)

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# Research Study

## THE BACKGROUND:

### How common are urinary tract infections (UTIs)?

UTIs affect **>50% of women** at some stage in their lives, although the incidence is highest in young women.



 **~25-30%** of women will suffer at least one recurrent infection.

Suspected UTIs make up **3% (10.2 million)** of GP visits in England, costing the NHS about **£316m in GP time** alone.

### UTIs affect about **15% of women**

each year according to NHS data.

- Worldwide **92 million** people were estimated to suffer from a UTI in 2013
- The global burden of this disease is rising, with **16.1% increase** in age-standardised incidence between 1990 and 2013
- **58,000 years lost to disability (YLD)** in 2003 alone.

UTIs are a significant cause of mortality among the elderly population with

### **4,835 deaths**

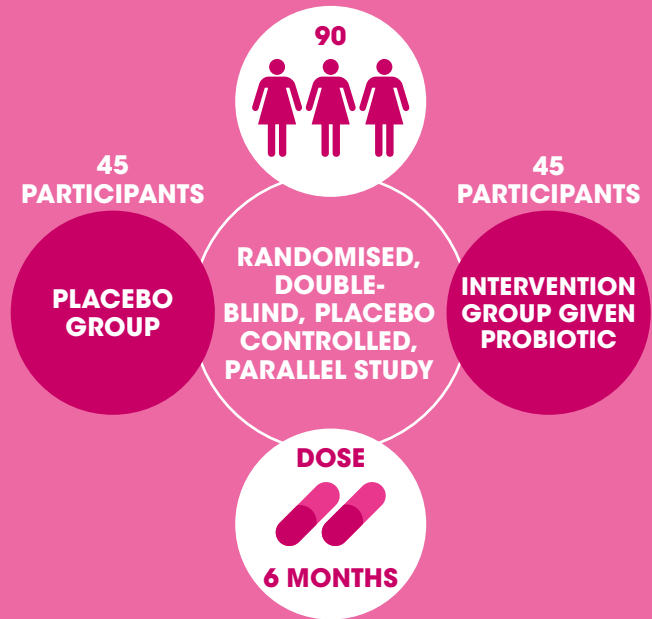
in England and Wales reported in 2012.



UTIs are responsible for **~14%** of community antibiotic prescriptions

Most urine infections are caused by a bacterium called *E. coli* (the probiotic strains in the supplement used were selected for their ability to inhibit this and other pathogenic bacteria causing UTIs).

## THE STUDY:



## THE RESULTS:

**19** Total UTI episodes in placebo group during study period:



**4** Total UTI episodes in probiotic group during study period:



A **73% reduction** in the number of recurrent urinary tract infections in the probiotic group compared to placebo.

An additional **96 UTI-free days** in the probiotic group compared to placebo.

**14** Antibiotic courses in the placebo group:



**3** Antibiotic courses in the probiotic group:

