Topic: In what ways does the utilization of cranberry supplements minimize the reoccurrence of urinary tract infections caused by *E.coli*?

It is estimated that at least 60% of women in the United States have contracted urinary infections at some point and because of the high recurrence of this infection. The estimated cost of diagnoses exceeds US $25 billion in a period of 20 years. The use of cranberries has become the traditional choice of most women to prevent urinary tract infections. Hisano et al. (2012). The recurrence of urinary tract infections ,following antibiotic treatments suggests *Escherichia coli’s* resistance therefore alternative medicine was explored. For centuries cranberries have been used as a treatment for urinary tract infections and its efficacy to reduce symptoms have been reported for years. Anti adherence activity against gram negative bacteria isolated from urine was observed in volunteers that were given a cranberry juice cocktail which proved its effectiveness in treatments. Das (2020). Urinary tract infections are diseases caused by *E.coli* which is a bacteria found in the human gut. The human gut acts as a pool for this bacteria and when it is released through excrement it then attacks the urethra causing an infection, however cranberries have components which hinders the sticking of this bacteria to cells found in the urethra. This means that cranberries have components that have anti adherence properties, are able to reduce symptoms caused by the infection by consumption of its supplements and reduces colonies of *E.coli* .

**Discussion**

**Effects of taking Cranberry supplements in regards to Urinary Tract Infection recurrence or Intake of Cranberry supplements on the recurrence of Urinary tract infections**

**We decide on one that works - 2nd one sounds clearer**

By preventing cleave of E. coli to uroepithelial cells in urinary tract thus reducing recurrence of Urinary tract Infection

**2**. Efficient use of cranberry which contains compounds like fructose and high molecular compound, aids in reducing E. coli manifestation, by preventing cleave of E. coli to uroepithelial cells in the urinary tract thus reducing the recurrence of Urinary tract Infection.

**A**. Consumption of cranberry compound is a major step in preventing the pathogenesis of E.coli because cranberry acts as anti adhesive agents in inhibiting the adherence of pathogens to the uroepithelial cell receptors in Urinary tract (B. Bartolomé et al. 2020)

**B**.This shows that cranberry compound hinders the development of E.coli because it prevents the sticking of bacteria to the cells that line the bladder, ureters and urethra thus unable to infect the urinary tract.

**C**: Cranberry compound is used to inhibit the bacterial adhesins; mannose-sensitive fimbrial adhesins and mannose-sensitive fimbrial adhesins that are found in uropathogenic E. coli (R, Raz et al. 2014)

**D**: This indicated that the consumption of cranberry is used to restrain protein found on the surface of bacteria which aids E. coli in attaching to the urinary tract, which then leads to UTI.

**Frequent consupmtion of cranberries and their by-products reduces symptoms caused by E-coli infections**

1. Frequent consumption of cranberries and their by-products can be very helpful in reducing the symptoms of Urinary tract Infections and their effects.

A.).Citric and malic acid which used as food preservatives and is also in cranberry juice, are capable of inhibiting the functions a wide variety of microorganisms including E-coli and other gram negative bacteria. ([Doores, 1993](https://www.frontiersin.org/articles/10.3389/fmicb.2017.00542/full" \l "B9) as cited in Jensen, [Struve](http://www.frontiersin.org/people/u/281126), Christensen & [Krogfelt](http://www.frontiersin.org/people/u/272634), Frontiers in Microbiology, 2017,<https://doi.org/10.3389/fmicb.2017.00542>)

B.The acid mixture found in cranberry is known to produce an antibacterial effect that reduce the numbers of bacteria in the urinary tract and limits their ability to cause harm.

D.

**Main idea III**

Regular consumption of cranberry supplements results in a reduction in the population of Escherichia coli present in the human body, which minimises the recurrence of urinary tract infection.

**Sources**

1. Cranberries are generally used as a natural alternative to antibiotics as they contain chemicals such as polyphenols which have properties that inhibit the growth of harmful bacteria (González de Llano et al. 2019)
2. A decrease in the abundance of bacteria which cause disease and a major increase in the number of bacteria that are important for human health was observed when cranberry extracts were used (O’Connor et al. 2019)

**Voices**

1. This means that cranberries contain chemicals that can prevent the reproduction and growth of E. coli
2. This observation shows that cranberry supplements have the potential to minimize the recurrence of urinary tract infections by reducing the population of E.coli while increasing the population of important bacteria.