

# Water Retention

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LITERATURE EDUCATION SERIES ON DIETARY SUPPLEMENTS

## To Your Health

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*Very few things in life are more uncomfortable than the feeling of constant bloating. We diet and exercise correctly but the extra water weight still seems to linger like an annoying un-welcomed guest in our house. Besides some select foods available to combat this, we wonder if there are other supplemental options out there that might help eliminate the beach ball tummy or the swelled wrists and ankles. Perhaps the answer to this question lies in the agriculture that surrounds us.*

### Water Retention

Fluid retention in humans is a signal that there is an abnormal accumulation of fluid within either various tissues of the body or the circulatory system. Our bodies utilize a very complex system of hormones that act on the kidneys and other organs to achieve water homeostasis. If not for this critical assembly of water regulators, every organ (or cell for that matter) would begin to shut down one by one. When one retains water, this usually signifies an inward interruption in this critical system (biologically stemmed), or an outward environmental influence (prescription drugs, high salt diet, etc). In any case, it can range from an annoying discomfort to a life-threatening condition.

### Juniper Berries

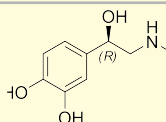
Juniper berries (or more appropriately named Juniper *cones*) have been used in the culinary arts for many years, but have gathered new attention due to its use as a urinary tract antiseptic<sup>1</sup>. The volatile oils of juniper berry extract have been shown to increase the rate of kidney filtration<sup>4</sup>, which in turn yields not only diuretic properties but also a flushing action, aiding in the detoxification process. Other studies have suggested the diuretic effects of juniper as having its actions on vasopressin secretion, actually being influenced by certain non-volatile oil constituents<sup>5</sup>. So regardless of the constituents, juniperus extract seems to play a dual role in the kidneys – both as a diuretic and as a nephroantiseptic.

### Watermelon seeds

Besides being a wonderful source of lycopene and vitamin C, the extract of watermelon (namely the seeds) has been shown to act as a mild diuretic and an antihypertensive agent. Watermelon contains large amounts of L-arginine and L-citrulline that have demonstrated in one study to be able to lower brachial blood pressure and carotid wave reflection in normal and hypertensive individuals<sup>2</sup>. This may be in part due to the amount of NO created by the high levels of arginine that the watermelon provides, seeing as nitric oxide has diuretic and natriuretic effects by increasing renal vasodilation<sup>3</sup>.



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### **Uva Ursi**

Uva ursi is a plant often named after the genus it is related to *Arctostaphylos* and has been used historically for medicinal purposes. Most commonly, Uva ursi has been used as a mild diuretic<sup>6</sup> and has shown to have kidney and bladder health benefits. It turns out that Uva ursi also contains a glycosylated hydroquinone called arbutin, which has demonstrated its ability to halt the proliferation of cancer cells in the bladder<sup>7</sup>. Other constituents of Uva ursi extract may even be responsible for its antimicrobial properties, as one study demonstrates the plant's unique ability to even inhibit the growth of *neisseria gonorrhoeae*<sup>8</sup>. Interestingly, some of the saponins found in Uva ursi give a detergent-like solvent action within kidneys, and along with the antibacterial quinones involved help with the prevention of urolithiasis (kidney stones)<sup>9</sup>.



### **Horsetail herb**

The Horsetail plant is native to Central and South America and has been used medicinally as a mild diuretic and urinary disorder aid<sup>10</sup>. As far as the diuretic effects of various species of Horsetail are concerned, studies show that this plant's extract has the ability to produce an effect similar to that of hydrochlorothiazide in relation to the excretion of sodium, potassium and chloride<sup>11</sup>. This herbal extract is also used as a tea for other urinary ailments<sup>12</sup>, although its exact mechanisms are not fully understood. So, although this plant is in fact rich in silica and is well known for its role in hair, skin, and nail amelioration, we can see its equal importance in water regulation in the human body.

### **Goldenroot herb**

Goldenrod is a genus of a multitude of different species of flowering plants that have a variety of medicinal uses. Of its traditional uses, Goldenrod seems to play a pivotal role in urological phytotherapy, aiding in the prevention of urinary tract infections and inflammation caused by kidney stones<sup>13</sup>. Interestingly, Goldenrod has also been seen to act in a similar manner to certain prescription medications in treating overactive bladder<sup>14</sup>, so while a urinary excretion aid has its place, so does bladder contraction control. This is why it may be advantageous to have Goldenrod included in a diuretic supplement.

### **Cranberry**

Cranberries contain flavonoids, vitamins, minerals, and other unique phytochemicals. Of special interest to urinary tract health are the polyphenolic antioxidants and tannins they contain. It is these interesting little chromogenic molecules that protect us from kidney stones. Studies show that ingesting cranberry extract results in a reduction of oxalate and phosphate excretion while increasing citrate excretion<sup>15</sup>, thus giving cranberries their antilithogenic effects<sup>16</sup>. However, what we all know and love about cranberries are their wonderful ability to help fight urinary tract infections. Within the bladder and tubules of the urinary tract, bacteria (namely *Escherichia coli*) love to adhere to urothelial cells and cause all sorts of inflammation and swelling. Cranberry phytochemicals have the ability to "unstick" these critters from walls of the urinary tract<sup>17-19</sup>. So it can be seen why cranberry extract would be a great team member to include in a supplementation regime to help aid overall kidney and bladder health.

### **Buchu leaves**

The leaves of the *Agathosma* genus ("Buchu" in Korean) have traditionally been used as an herbal remedy for ailments of the gastrointestinal and urinary tract, with the diuretic and antiseptic properties being due to various polyphenolic constituents. Other studies claim how Buchu preparations are now being used as a diuretic as well as for a wide range of conditions including stomach aches, rheumatism, bladder and kidney infections and coughs and colds<sup>20</sup>.



### **Corn silk**

*Maydis stigma* (corn silk) is an herbal supplement that has been long used for the treatment of urinary ailments in various tribal and traditional medicine systems. In particular, its use as a diuretic has been examined in scientific research. Studies performed on rats give insight to its pharmacology and have been suggested that this herb's mode of action is in accordance with increased glomerular filtration rate and inhibition of sodium and chloride tubular reabsorption<sup>21</sup>. It also soothes and relaxes the lining of the bladder and urinary tubules, hence reducing irritation and increasing urine secretion<sup>22</sup>. Not only does corn silk have a diuretic effect, but it also has been reported to be used for the treatment of cystitis, edema, kidney stones, diuretic, prostate disorder, and urinary infections as well as bedwetting and obesity<sup>23-28</sup>.

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