

### Incontinence

Urinary incontinence is defined as a loss of bladder control. Incontinence can result from several biological factors, including weak bladder muscles and inflammation, as well as from nerve damage associated with diseases such as multiple sclerosis (MS) and Parkinson's disease. More than one in ten Americans over age 65 is estimated to suffer from incontinence, particularly women.

Several recent clinical trials indicate that cannabinoid therapy may reduce incidents of incontinence. Writing in the February 2003 issue of the journal *Clinical Rehabilitation*, investigators at Oxford's Centre for Enablement in Britain reported that self-administered doses of whole-plant cannabinoid extracts improved bladder control compared to placebo in patients suffering from MS and spinal cord injury.[1]

Investigators at London's Institute for Neurology followed up these initial findings in an open-label pilot study of cannabis-based extracts for bladder dysfunction in 15 patients with advanced multiple sclerosis. Following cannabinoid therapy, "urinary urgency, the number of and volume of incontinence episodes, frequency and nocturia all decreased significantly," investigators determined. "Cannabis-based medicinal extracts are a safe and effective treatment for urinary and other problems in patients with advanced MS." [2]

These findings were confirmed in 2006 in a multi-center, randomized placebo-controlled trial involving 630 patients administered oral doses of cannabis extracts or THC. Researchers reported that subjects administered cannabis extracts experienced a 38 percent reduction in incontinence episodes from baseline to the end of treatment, while patients administered THC experienced a 33 percent reduction, suggesting a "clinical effect of cannabis on incontinence episodes." [3]

Most recently, preclinical data presented at the 2006 annual meeting of the American Urological Association indicated that cannabis analogs can reduce bladder inflammation and bladder over-activity in animals.[4]

In light of these findings, experts have recommended the use of cannabinoids as potential 'second-line' agents for treating incontinence.[5]

### REFERENCES

[1] Wade et al. 2003. A preliminary controlled study to determine whether whole-plant cannabis extracts can improve intractable neurogenic symptoms. *Clinical Rehabilitation* 17: 21-29.

[2] Brady et al. 2004. An open label pilot study of cannabis-based extracts for bladder dysfunction in advanced multiple sclerosis. *Multiple Sclerosis* 10: 425-433.

[3] Freeman et al. 2006. The effect of cannabis on urge incontinence in patients with multiple sclerosis: a multicentre, randomized placebo-controlled trial. *The International Urogynecology Journal* 17: 636-641.

[4] University of Pittsburgh Medical Center Press Release. May 21, 2006. " Marijuana-derived drug suppresses bladder pain in animal models."

[5] Kalsi and Fowler. 2005. Therapy insight: bladder dysfunction associated with multiple sclerosis. *Nature Clinical Practice Neurology* 2: 492-501.