

## Studies and Case Reports

Last update: 1 August 2008

- Improvement of symptoms or positive evaluation by authors
- No relevant change of symptoms or negative evaluation by authors
- ❖ Deterioration of symptoms

# Nausea and Vomiting – Cancer Chemotherapy

## Controlled Studies

### Dronabinol

- Artim R, DiBella N. Tetrahydrocannabinol (THC) plus prochlorperazine (PCZ) for refractory nausea and vomiting (N/V). Proceedings of the American Society for Clinical Oncology 1983;2:84.
- Chang AE, Shiling DJ, Stillman RC, Goldberg NH, Seipp CA, Barofsky I. Delta-9-tetrahydrocannabinol as an antiemetic in cancer patients receiving high-dose methotrexate. Annals of Internal Medicine 1979;91:819-824.
  - Chang AE, Shiling DJ, Stillman RC, Goldberg NH, Seipp CA, Barofsky I, Rosenberg SA.. A prospective evaluation of delta-9-tetrahydrocannabinol as an antiemetic in patients receiving adriamycin and cytoxan chemotherapy. Cancer 1981; 47: 1746-1751.
- Colls BM, Ferry DG, Gray AJ, Harvey VJ, McQueen EG. The antiemetic activity of tetrahydrocannabinol versus metoclopramide and thiethylperazine in patients undergoing cancer chemotherapy. New Zealand Medical Journal 1980;91:449-451.
- Ekert H, Waters KD, Jurk KH, Mobilia J, Loughnan P. Alleviation of cancer chemotherapy-induced nausea and vomiting by delta-9-tetrahydrocannabinol. Medical Journal of Australia 1979;2:657-659.
- Frytak S, Moertel CG, O'Fallon JR, Rubin J, Creagan ET, O'Connell MJ. Delta-9-tetrahydrocannabinol as an antiemetic for patients receiving cancer chemotherapy. A comparison with prochlorperazine and a placebo. Annals of Internal Medicine 1979;91:825-830.
- Gralla RJ, Tyson LB, Bordin LA, Clark RA, Kelsen DP, Kris MG. Antiemetic therapy: a review of recent studies and a report of a random assignment trial comparing metoclopramide with delta-9-tetrahydrocannabinol. Cancer Treatment Report 1984;68:163-172.
- Kluin-Nelemans JC, Nelemans FA, Meuwissen OJA, Maes RAA.  $\Delta^9$ -tetrahydrocannabinol (THC) as an antiemetic in patients treated with cancer chemotherapy; a double-blind cross-over trial against placebo. Veterinary and Human Toxicology 1979;21:338-340.

- Lane M, Vogel CL, Ferguson J, Krasnow S, Saiers JL, Hamm J. Dronabinol and prochlorperazine in combination for treatment of cancer chemotherapy-induced nausea and vomiting. *Journal of Pain and Symptom Management* 1991;6:352-359.
- Levitt M, Faiman C, Hawks R, Wilson A. Randomized double blind comparison of delta-9-tetrahydrocannabinol (THC) and marijuana as chemotherapy antiemetics. *Proceedings of the American Society for Clinical Oncology* 1984;3:91.
- Levitt M, Wilson A, Bowman D, Faiman C, Kemel S, Krepart G. Dose vs response of tetrahydrocannabinol (THC) vs prochlorperazine as chemotherapy antiemetics. *Proceedings of the American Society for Clinical Oncology* 1981;22:422.
- McCabe M, Smith FP, Goldberg D, Macdonald J, Woolley PV, Warren R. Efficacy of tetrahydrocannabinol in patients refractory to standard anti-emetic therapy. *Investigational New Drugs* 1988;6:243-246.
- Neidhart JA, Gagen MM, Wilson HE, Young DC. Comparative trial of the antiemetic effects of THC and haloperidol. *International Journal of Clinical Pharmacology Research* 1981; 21: 38-42S.
- Orr LE, McKernan JF, Bloome B. Antiemetic effect of tetrahydrocannabinol. Compared with placebo and prochlorperazine in chemotherapy-associated nausea and emesis. *Archives of Internal Medicine* 1980;140:1431-433.
- Sallan SE, Cronin C, Zelen M, Zinberg NE. Antiemetics in patients receiving chemotherapy for cancer. A randomized comparison of delta-9-tetrahydrocannabinol and prochlorperazine. *New England Journal of Medicine* 1980;302:135-138.
- Sallan SE, Zinberg NE, Frei E. Antiemetic effect of delta-9-tetrahydrocannabinol in patients receiving cancer chemotherapy. *New England Journal of Medicine* 1975;293:795-797.
- Ungerleider JT, Andrysiak T, Fairbanks L, Goodnight J, Sarna G, Jamison K. Cannabis and cancer chemotherapy. A comparison of oral delta-9-THC and prochlorperazine. *Cancer* 1982;50:636-645.
- Ungerleider JT, Sarna G, Fairbanks LA, Goodnight J, Andrysiak T, Jamison K. THC or compazine for the cancer chemotherapy patient – the UCLA study. Part II: patient drug preference. *American Journal of Clinical Oncology* 1985; 8: 142-147.
- Meiri E, Jhangiani H, Vredenburgh JJ, Barbato LM, Carter FJ, Yang HM, Baranowski V. Efficacy of dronabinol alone and in combination with ondansetron versus ondansetron alone for delayed chemotherapy-induced nausea and vomiting. *Curr Med Res Opin* 2007;23(3):533-43.

### **Cannabis (smoked)**

- Levitt M, Faiman C, Hawks R, Wilson A. Randomized double blind comparison of delta-9-tetrahydrocannabinol (THC) and marijuana as chemotherapy antiemetics. *Proceedings of the American Society for Clinical Oncology* 1984;3:91.

### **Nabilone**

- Ahmedzai S, Carlyle DL, Clader IT, Moran F. Anti-emetic efficacy and toxicity of nabilone, a synthetic cannabinoid, in lung cancer chemotherapy. *British Journal of Cancer* 1983;48:657-663.
- Chan HS, Correia JA, MacLeod SM. Nabilone versus prochlorperazine for control of cancer chemotherapy-induced emesis in children: a double-blind, crossover trial. *Pediatrics* 1987; 79: 946-952
- Crawford SM, Buckman R. Nabilone and metoclopramide in the treatment of nausea and vomiting due to cisplatin: a double blind study. *Medical Oncology and Tumor Pharmacotherapy* 1986; 3: 39-42.

- Cunningham D, Bradley CJ, Forrest GJ, Hutcheon AW, Adams L, Sneddon M, et al. A randomized trial of oral nabilone and prochlorperazine compared to intravenous metoclopramide and dexamethasone in the treatment of nausea and vomiting induced by chemotherapy regimens containing cisplatin or cisplatin analogues. *European Journal of Cancer and Clinical Oncology* 1988; 24: 685-689.
- Dalzell AM, Bartlett H, Lilleyman JS. Nabilone: An alternative antiemetic for cancer chemotherapy. *Archives of Disease in Childhood* 1986;61:502-505.
- Einhorn LH, Nagy C, Furnas B, Williams SD. Nabilone: an effective antiemetic in patients receiving cancer chemotherapy. *Journal of Clinical Pharmacology*. 1981 Aug-Sep;21(8-9 Suppl):64S-69S.
- George M, Pejovic MH, Thuaire M, Kramar A, Wolff JP. Randomized comparative trial of a new antiemetic: nabilone, in cancer patients treated with cisplatin. *Biomedicine and Pharmacotherapy* 1983; 37: 24-27.
- Herman TS, Einhorn LH, Jones SE, Nagy C, Chester AB, Dean JC, et al. Superiority of nabilone over prochlorperazine as an antiemetic in patients receiving cancer chemotherapy. *New England Journal of Medicine* 1979; 300: 1295-1297.
- Johansson R, Kilkku P, Groenroos M. A double-blind, controlled trial of nabilone vs prochlorperazine for refractory emesis induced by cancer chemotherapy. *Cancer Treatment Reviews* 1982; 9: 25-33.
- Jones SE, Durant JR, Greco FA, Robertone A. A multi-institutional phase III study of nabilone vs placebo in chemotherapy-induced nausea and vomiting. *Cancer Treatment Reviews* 1982; 9: 45-48
- Levitt M. Nabilone vs placebo in the treatment of chemotherapy-induced nausea and vomiting in cancer patients. *Cancer Treatment Reviews* 1982; 9(suppl B): 49-53.
- Nagy CM, Furnas BE, Einhorn LH, Bond WH. Nabilone: antiemetic crossover study in cancer chemotherapy patients. *Proceedings of the American Society for Cancer Research* 1978;19:30.
- Niederle N, Schutte J, Schmidt CG. Crossover comparison of the antiemetic efficacy of nabilone and alizapride in patients with nonseminomatous testicular cancer receiving cisplatin therapy. *Klinische Wochenschrift* 1986; 64: 362-365.
- Niiranen Aila, Mattson K. A cross-over comparison of nabilone and prochlorperazine for emesis induced by cancer chemotherapy. *American Journal of Clinical Oncology* 1985;8:336-340.
- Pomeroy M, Fennelly JJ, Towers M. Prospective randomized double-blind trial of nabilone versus domperidone in the treatment of cytotoxic-induced emesis. *Cancer Chemotherapy and Pharmacology* 1986;17:285-288.
- Priestman SG, Priestman TJ, Canney PA. A double-blind randomised cross-over comparison of nabilone and metoclopramide in the control of radiation-induced nausea. *Clinical Radiology* 1987; 38: 543-544.
- Steele N, Gralla RJ, Braun Jr DW, Young CW. Double-blind comparison of the antiemetic effects of nabilone and prochlorperazine on chemotherapy-induced emesis. *Cancer Treatment Report* 1980; 64: 219-224.
- Wada JK, Bogdon DL, Gunnell JC, Hum GJ, Gota CH, Rieth TE. Double-blind, randomized, crossover trial of nabilone vs. placebo in cancer chemotherapy. *Cancer Treatment Reviews* 1982; 9(Suppl B): 39-44

### **Levonantradol**

- Citron ML, Herman TS, Vreeland F, Krasnow SH, Fossieck BE, Jr. Antiemetic efficacy of levonantradol compared to delta-9-tetrahydrocannabinol for chemotherapy-induced nausea and vomiting. *Cancer Treatment Reports* 1985;69:109-112.
- Higi M, Niederle N, Bremer K, Schmitt G, Schmidt CG, Seeber S. Levonantradol bei der Behandlung

von zytostatika-bedingter Nausea and Vomiting. Deutsche Medizinische Wochenschrift 1982; 107: 1232-1234.

- Hutcheon AW, Palmer JB, Soukop M, Cunningham D, McArdle C, Welsh J, et al. A randomised multicentre single blind comparison of a cannabinoid anti-emetic (levonantradol) with ychlorpromazine in patients receiving their first cytotoxic chemotherapy. European Journal for Cancer and Clinical Oncology 1983; 19: 1087-1090
- Stambaugh Jr JE, McAdams J, Vreeland F. Dose ranging evaluation of the antiemetic efficacy and toxicity of intramuscular levonantradol in cancer subjects with chemotherapy-induced emesis. International Journal of Clinical Pharmacology Research 1984; 24: 480-485

## Uncontrolled Studies

### Delta-8-THC

- Abrahamov A, Abrahamov A, Mechoulam R. An efficient new cannabinoid antiemetic in pediatric oncology. Life Sciences 1995;56:2097-2102.

### Cannabis (smoked)

- Vinciguerra V, Moore T, Brennan E. Inhalation marijuana as an antiemetic for cancer chemotherapy. New York State Journal of Medicine 1988;88:525-527.
- Musty RE, Rossi R. Effects of smoked cannabis and oral delta-9-tetrahydrocannabinol on nausea and emesis after cancer chemotherapy: A review of state clinical trials. J Cannabis Ther 2001;1(1):29-42.

## Case Reports, Surveys

- Doblin RE, Kleiman MA. Marijuana as antiemetic medicine: a survey of oncologists' experiences and attitudes. American Journal of Clinical Oncology 1991; 9: 1314-1319.
  - Schwartz RH, Voth EA, Sheridan MJ. Marijuana to prevent nausea and vomiting in cancer patients: a survey of clinical oncologists. South Medical Journal 1997;90(2):167-72.

## Nausea and Vomiting – Radiotherapy

### Controlled Studies

#### Dronabinol

- Ungerleider JT, Andrysiak TA, Fairbanks LA, Tesler AS, Parker RG. Tetrahydrocannabinol vs. prochlorperazine. The effects of two antiemetics on patients undergoing radiotherapy. Radiology 1984;150(2):598-9.

## **Levonantradol**

- Lucraft HH, Palmer MK. Randomised clinical trial of levonantradol and chlorpromazine in the prevention of radiotherapy-induced vomiting. *Clinical Radiology* 1982; 33: 621-622.

# **Nausea and Vomiting – Metastases**

## **Uncontrolled Studies**

### **Dronabinol**

- Zutt M, Hanssle H, Emmert S, Neumann C, Kretschmer L. [Dronabinol for supportive therapy in patients with malignant melanoma and liver metastases] [Article in German]. *Hautarzt* 2006;57(5):423-7.

## **Case Reports, Surveys**

### **Dronabinol**

- Gonzalez-Rosales F, Walsh D. Intractable nausea and vomiting due to gastrointestinal mucosal metastases relieved by tetrahydrocannabinol (dronabinol). *Journal of Pain and Symptom Management* 1997;14(5):311-314.

# **Nausea and Vomiting – Surgery**

## **Controlled Studies**

### **Dronabinol**

- Layeeque R, Siegel E, Kass R, Henry-Tillman RS, Colvert M, Mancino A, Klimberg VS. Prevention of nausea and vomiting following breast surgery. *Am J Surg* 2006;191(6):767-72.

### **Nabilone**

- Lewis IH, Campbell DN, Barrowcliffe MP. Effect of nabilone on nausea and vomiting after total abdominal hysterectomy. *British Journal of Anaesthesia* 1994; 73: 244-246.

# Nausea and Vomiting – HIV/AIDS

## Uncontrolled Studies

### Cannabis (smoked)

- de Jong BC, Prentiss D, McFarland W, Machezano R, Israelski DM. Marijuana use and its association with adherence to antiretroviral therapy among HIV-infected persons with moderate to severe nausea. *J Acquir Immune Defic Syndr* 2005;38(1):43-6.

## Case Reports, Surveys

### Cannabis (smoked)

- Woolridge E, Barton S, Samuel J, Osorio J, Dougherty A, Holdcroft A. Cannabis use in HIV for pain and other medical symptoms. *J Pain Symptom Manage* 2005;29(4):358-67.
- Sidney S. Marijuana use in HIV-positive and AIDS patients: Results of an anonymous mail survey. *J Cannabis Ther* 2001;1(3-4):35-43.

# Nausea and Vomiting – Therapy of Hepatitis C

## Uncontrolled Studies

### Dronabinol, Nabilone

- Costiniuk CT, Mills E, Cooper CL. Evaluation of oral cannabinoid-containing medications for the management of interferon and ribavirin-induced anorexia, nausea and weight loss in patients treated for chronic hepatitis C virus. *Can J Gastroenterol* 2008;22(4):376-80.

### Cannabis (smoked)

- Sylvestre DL, Clements BJ, Malibu Y. Cannabis use improves retention and virological outcomes in patients treated for hepatitis C. *Eur J Gastroenterol Hepatol* 2006;18(10):1057-63.

# **Nausea and Vomiting – Pregnancy**

## **Case Reports, Surveys**

### **Cannabis (smoked)**

- Curry W-NL. Hyperemesis gravidarum and clinical cannabis: To eat or not to eat? *J Cannabis Ther* 2002;2(3-4):63-83.
- Westfall RE, Janssen PA, Lucas P, Capler R. Survey of medicinal cannabis use among childbearing women: patterns of its use in pregnancy and retroactive self-assessment of its efficacy against 'morning sickness'. *Complement Ther Clin Pract* 2006;12(1):27-33.

# **Nausea and Vomiting – Other**

## **Case Reports, Surveys**

### **Dronabinol**

- Merriman AR, Oliak DA. Use of medical marijuana for treatment of severe intractable nausea after laparoscopic Roux-en-Y gastric bypass surgery: case report. *Surg Obes Relat Dis*, 26 January 2008 [Electronic publication ahead of print]

# **Nausea and Vomiting – Healthy Subjects**

## **Controlled Studies**

### **Cannabis (smoked)**

- Soderpalm AH, Schuster A, de Wit H. Antiemetic efficacy of smoked marijuana: subjective and behavioral effects on nausea induced by syrup of ipecac. *Pharmacology, Biochemistry and Behavior* 2001;69(3-4):343-50.

# Appetite Loss – HIV/AIDS

## Controlled Studies

### Dronabinol

- Beal JE, Olson R, Laubenstein L, Morales JP, Bellman P, Yangco B, Lefkowitz L, Plasse TF, Shepard KV. Dronabinol as a treatment for anorexia associated with weight loss in patients with AIDS. *Journal of Pain and Symptom Management* 1995;10(2):89-97.
- Timpone JG, Wright DJ, Li N, Egorin MJ, Enama ME, Mayers J, Galetto G, and the DATRI 004 Study Group. The safety and pharmacokinetics of single-agent and combination therapy with megestrol acetate and dronabinol for the treatment of HIV wasting syndrome. *AIDS Research and Human Retroviruses* 1997;13:305-315.
- Abrams DI, Hilton JF, Leiser RJ, Shade SB, Elbeik TA, Aweeka FT, Benowitz NL, Bredt BM, Kosel B, Aberg JA, Deeks SG, Mitchell TF, Mulligan K, Bacchetti P, McCune JM, Schambelan M. Short-term effects of cannabinoids in patients with HIV-1 infection: a randomized, placebo-controlled clinical trial. *Ann Intern Med* 2003;139(4):258-66.
- Haney M, Rabkin J, Gunderson E, Foltin RW. Dronabinol and marijuana in HIV(+) marijuana smokers: acute effects on caloric intake and mood. *Psychopharmacology (Berl)* 2005;181(1):170-8.
- Haney M, Gunderson EW, Rabkin J, Hart CL, Vosburg SK, Comer SD, Foltin RW. Dronabinol and marijuana in HIV-positive marijuana smokers. Caloric intake, mood, and sleep. *J Acquir Immune Defic Syndr* 2007;45(5):545-54.

### Cannabis (smoked)

- Haney M, Rabkin J, Gunderson E, Foltin RW. Dronabinol and marijuana in HIV(+) marijuana smokers: acute effects on caloric intake and mood. *Psychopharmacology (Berl)* 2005;181(1):170-8.
- Haney M, Gunderson EW, Rabkin J, Hart CL, Vosburg SK, Comer SD, Foltin RW. Dronabinol and marijuana in HIV-positive marijuana smokers. Caloric intake, mood, and sleep. *J Acquir Immune Defic Syndr* 2007;45(5):545-54.

## Uncontrolled Studies

### Dronabinol

- Gorter R, Seefried M, Volberding P. Dronabinol effects on weight in patients with HIV infection. *AIDS* 1992;6:127.
- Plasse TF, Gorter RW, Krasnow SH, Lane M, Shepard KV, Wadleigh RG. Recent clinical experience with dronabinol. *Pharmacology, Biochemistry and Behavior* 1991;40:695-700.
- Plasse T, Conant M, Gorter R, Shepard KV. Dronabinol stimulates appetite and causes weight gain in HIV patients. *International Conference on AIDS* 1992;8(3):122 (abstract no. PuB 7442).
- Struwe M, Kaempfer SH, Geiger CJ, Pavia AT, Plasse TF, Shepard KV, Ries K, Evans TG. Effect of

dronabinol on nutritional status in HIV infection. *Annals of Pharmacotherapy* 1993;27:827-831.

- Beal JE, Olson R, Lefkowitz L, Laubenstein L, Bellman P, Yangco B, Morales JO, Murphy R, Powderly W, Plasse TF, Mosdell KW, Shepard KV. Long-term efficacy and safety of dronabinol for acquired immunodeficiency syndrome-associated anorexia. *Journal of Pain and Symptom Management* 1997;14(1):7-14.
- Dejesus E, Rodwick BM, Bowers D, Cohen CJ, Pearce D. Use of dronabinol improves appetite and reverses weight loss in HIV/AIDS-infected patients. *J Int Assoc Physicians AIDS Care* 2007;6(2):95-100.

## Case Reports, Surveys

### Cannabis (smoked)

- Prentiss D, Power R, Balmas G, Tzuang G, Israelski DM. Patterns of marijuana use among patients with HIV/AIDS followed in a public health care setting. *J Acquir Immune Defic Syndr* 2004;35(1):38-45.
- Woolridge E, Barton S, Samuel J, Osorio J, Dougherty A, Holdcroft A. Cannabis use in HIV for pain and other medical symptoms. *J Pain Symptom Manage* 2005;29(4):358-67.
- Sidney S. Marijuana use in HIV-positive and AIDS patients: Results of a an anonymous mail survey. *J Cannabis Ther* 2001;1(3-4):35-43.

## Appetite Loss – Cancer

### Controlled Studies

#### Dronabinol

- Jatoi A, Windschitl HE, Loprinzi CL, Sloan JA, Dakhil SR, Mailliard JA, Pundaleeka S, Kardinal CG, Fitch TR, Krook JE, Novotny PJ, Christensen B. Dronabinol versus megestrol acetate versus combination therapy for cancer-associated anorexia: a North Central Cancer Treatment Group study. *Journal of Clinical Oncology* 2002;20(2):567-573.
- Regelson W, Butler JR, Schulz J, Kirk T, Peek L, Green ML, Zalis MO. Delta-9-tetrahydrocannabinol as an effective antidepressant and appetite-stimulating agent in advanced cancer patients. In: Braude MC, Szara S, editors. *Pharmacology of marijuana*. Vol 2. New York: Raven Press, 1976. p. 763-776.
- Wadleigh R, Spaulding GM, Lumbersky B, Zimmer M, Shepard K, Plasse T. Dronabinol enhancement of appetite in cancer patients. *Proc Am Soc Oncology* 1990; 9: 331.
  - Strasser F, Luftner D, Possinger K, Ernst G, Ruhstaller T, Meissner W, Ko YD, Schnelle M, Reif M, Cerny T. Comparison of orally administered cannabis extract and delta-9-tetrahydrocannabinol in treating patients with cancer-related anorexia-cachexia syndrome: a multicenter, phase III, randomized, double-blind, placebo-controlled clinical trial from the Cannabis-in-Cachexia-Study-Group. *J Clin Oncol* 2006;24(21):3394-400.

## **Cannabis (oral, sublingual)**

- Strasser F, Luftner D, Possinger K, Ernst G, Ruhstaller T, Meissner W, Ko YD, Schnelle M, Reif M, Cerny T. Comparison of orally administered cannabis extract and delta-9-tetrahydrocannabinol in treating patients with cancer-related anorexia-cachexia syndrome: a multicenter, phase III, randomized, double-blind, placebo-controlled clinical trial from the Cannabis-in-Cachexia-Study-Group. *J Clin Oncol* 2006;24(21):3394-400.

## **Uncontrolled Studies**

### **Dronabinol**

- Plasse TF, Gorter RW, Krasnow SH, Lane M, Shepard KV, Wadleigh RG. Recent clinical experience with dronabinol. *Pharmacology, Biochemistry and Behavior* 1991;40:695-700.
- Nelson K, Walsh D, Deeter P, Sheehan F. A phase II study of delta-9-tetrahydrocannabinol for appetite stimulation in cancer-associated anorexia. *Journal of Palliative Care* 1994;10:14-18.

## **Appetite Loss – Alzheimer's Disease**

## **Controlled Studies**

### **Dronabinol**

- Volicer L, Stelly M, Morris J, McLaughlin J, Volicer BJ. Effects of dronabinol on anorexia and disturbed behavior in patients with Alzheimer's disease. *International Journal of Geriatric Psychiatry* 1997;12:913-919.

## **Uncontrolled Studies**

### **Dronabinol**

- Patel S, Shua-Haim JR, Pass M. Safety and efficacy of dronabinol in the treatment of agitation in patients with Alzheimer's disease with anorexia: A retrospective chart review. Abstract, 11th International Conference of the IPA, 17-22 August 2003, Chicago.

# **Appetite Loss – Geriatrics**

## **Uncontrolled Studies**

### **Dronabinol**

- Wilson MM, Philpot C, Morley JE. Anorexia of aging in long term care: is dronabinol an effective appetite stimulant? - a pilot study. *J Nutr Health Aging* 2007;11(2):195-8.

# **Appetite Loss - Anorexia nervosa**

## **Controlled Studies**

### **Dronabinol**

- Gross H, Ebert MH, Faden VB, Goldberg SC, Kaye WH, Caine ED, Hawks R, Zinberg N. A double-blind trial of delta 9-tetrahydrocannabinol in primary anorexia nervosa. *Journal of Clinical Psychopharmacology* 1983;3(3):165-171.

# **Appetite Loss – COPD**

## **Uncontrolled Studies**

### **Dronabinol**

- Bergmann K-C. [Dronabinol, a possible new therapeutic option in patients with COPD and pulmonal cachexia] [Article in German]. Abstract, 2005 Conference of the German Society for Pneumology, 17 March 2005, Berlin.

# Appetite Loss – Healthy Subjects

## Controlled Studies

### Cannabis (smoked)

- Foltin RW, Fishman MW, Brady JV. Behavioral analysis of marijuana effects on food intake in humans. *Pharmacology, Biochemistry and Behavior* 1986;25:577-582.
- Foltin RW, Fischman MW, Byrne MF. Effects of smoked marijuana on food intake and body weight of humans living in a residential laboratory. *Appetite* 1988;11(1):1-14.

# Spasticity – Multiple Sclerosis

## Controlled Studies

### Dronabinol

- Killestein J, Hoogervorst EL, Reif M, Kalkers NF, Van Loenen AC, Staats PG, Gorter RW, Uitdehaag BM, Polman CH. Safety, tolerability, and efficacy of orally administered cannabinoids in MS. *Neurology* 2002;58(9):1404-7.
- Petro DJ, Ellenberger C. Treatment of human spasticity with  $\Delta^9$ -tetrahydrocannabinol. *Journal of Clinical Pharmacology* 1981;(Suppl 21):413S-416S.
- Ungerleider JT, Andyrsiak T, Fairbanks L, Ellison GW, Myers LW.  $\Delta^9$ -THC in the treatment of spasticity associated with multiple sclerosis. *Advances in Alcohol and Substance Abuse* 1987;7:39-50.
- Zajicek J, Fox P, Sanders H, Wright D, Vickery J, Nunn A, Thompson A, on behalf of the UK MS Research Group. Cannabinoids for treatment of spasticity and other symptoms related to multiple sclerosis (CAMS study): multicentre randomised placebo-controlled trial. *Lancet* 2003; 362(9385): 1517-1526.
- Zajicek JP, Sanders HP, Wright DE, Vickery PJ, Ingram WM, Reilly SM, Nunn AJ, Teare LJ, Fox PJ, Thompson AJ. Cannabinoids in multiple sclerosis (CAMS) study: safety and efficacy data for 12 months follow up. *J Neurol Neurosurg Psychiatry* 2005;76(12):1664-9.

### Nabilone

- Martyn CN, Illis LS, Thom J. Nabilone in the treatment of multiple sclerosis. *Lancet* 1995;345:579.

### Cannabis (oral, sublingual)

- Vaney C, Heinzl-Gutenbrunner M, Jobin P, Tschopp F, Gattlen B, Hagen U, Schnelle M, Reif M. Efficacy of tetrahydrocannabinol in patients refractory to standard antiemetic therapy. Efficacy, safety and tolerability of an orally administered cannabis extract in the treatment of spasticity in patients with multiple sclerosis: a randomized, double-blind, placebo-controlled, crossover study. *Multiple Sclerosis* 2004;10(4):417-24.

- Wade DT, Makela P, Robson P, House H, Bateman C. Do cannabis-based medicinal extracts have general or specific effects on symptoms in multiple sclerosis? A double-blind, randomized, placebo-controlled study on 160 patients. *Multiple Sclerosis* 2004;10(4):434-41.
- Zajicek J, Fox P, Sanders H, Wright D, Vickery J, Nunn A, Thompson A, on behalf of the UK MS Research Group. Cannabinoids for treatment of spasticity and other symptoms related to multiple sclerosis (CAMS study): multicentre randomised placebo-controlled trial. *Lancet* 2003; 362(9385): 1517-1526.
- Zajicek JP, Sanders HP, Wright DE, Vickery PJ, Ingram WM, Reilly SM, Nunn AJ, Teare LJ, Fox PJ, Thompson AJ. Cannabinoids in multiple sclerosis (CAMS) study: safety and efficacy data for 12 months follow up. *J Neurol Neurosurg Psychiatry* 2005;76(12):1664-9.
- Wade DT, Makela PM, House H, Bateman C, Robson P. Long-term use of a cannabis-based medicine in the treatment of spasticity and other symptoms in multiple sclerosis. *Mult Scler* 2006;12(5):639-45.
- Collin C, Ambler Z, Kent R, McCalla R. A randomised controlled study of Sativex® in patients with symptoms of spasticity due to multiple sclerosis. 22nd Congress of the ECTRIMS, 27-30 September 2006, Madrid, Spain.
- Collin C, Davies P, Mutiboko IK, Ratcliffe S, for the Sativex Spasticity in MS Study Group. Randomized controlled trial of cannabis-based medicine in spasticity caused by multiple sclerosis. *Eur J Neurology* 2007;14(3):290–296.

### **Cannabis (smoked)**

- Meinck HM, Schönle PWA, Conrad B. Effect of cannabinoids on spasticity and ataxia in multiple sclerosis. *Journal of Neurology* 1989;236:120-122.
- ❖ Greenberg HS, Werness SAS, Pugh JE, Andrus RO, Anderson DJ, Domino EF. Short-term effects of smoking marijuana on balance in patients with multiple sclerosis and normal volunteers. *Clinical Pharmacology and Therapeutics* 1994;55:324-328.

## **Case Reports, Surveys**

### **Dronabinol**

- Deutsch SI, Rosse RB, Connor JM, Burket JA, Murphy ME, Fox FJ. Current status of cannabis treatment of multiple sclerosis with an illustrative case presentation of a patient with MS, complex vocal tics, paroxysmal dystonia, and marijuana dependence treated with dronabinol. *CNS Spectr* 2008;13(5):393-403.

### **Cannabis (smoked)**

- Consroe P, Musty R, Rein J, Tillery W, Pertwee R. The perceived effects of smoked cannabis on patients with multiple sclerosis. *European Neurology* 1997;38:44-48.
- Page SA, Verhoef MJ, Stebbins RA, Metz LM, Levy JC. Cannabis use as described by people with multiple sclerosis. *Can J Neurol Sci* 2003;30(3):201-5.
- Chong MS, Wolff K, Wise K, Tanton C, Winstock A, Silber E. Cannabis use in patients with multiple sclerosis. *Mult Scler* 2006;12(5):646-51.
- Hodges C. Personal account of medical use of cannabis. *J Cannabis Ther* 2002;2(3-4):155-60.

# Spasticity – Spinal Cord Injury

## Controlled Studies

### Dronabinol

- Hanigan WC, Destree R, Truong XT. The effect of  $\Delta^9$ -THC on human spasticity. *Clinical Pharmacology and Therapeutics* 1986;39:198.
- Maurer M, Henn V, Dittrich A, Hofmann A. Delta-9-tetrahydrocannabinol shows antispastic and analgesic effects in a single case double-blind trial. *European Archives of Psychiatry and Clinical Neuroscience* 1990;240:1-4.
- Hagenbach U, Luz S, Ghafoor N, Berger JM, Grotenhermen F, Brenneisen R, Mäder M. The treatment of spasticity with Delta9-tetrahydrocannabinol in persons with spinal cord injury. *Spinal Cord* 2007;45(8):551-62.

## Uncontrolled Studies

### Dronabinol

- Kogel RW, Johnson PB, Chintam R, Robinson CJ, Nemchausky BA. Treatment of spasticity in spinal cord injury with dronabinol, a tetrahydrocannabinol derivative. *American Journal of Therapeutics* 1995;2(10):799-805.

## Case Reports, Surveys

### Cannabis (smoked)

- Malec J, Harvey RF, Cayner JJ. Cannabis effect on spasticity in spinal cord injury. *Archives of Physical Medicine and Rehabilitation* 1982;63:116-118.
- Consroe P, Tillery W, Rein J, Musty RE. Reported Marijuana effects in patients with spinal cord injury. 1998 Symposium on the Cannabinoids. Burlington: International Cannabinoid Research Society, 1998, p. 64.
- Dunn M, Davis R. The perceived effects of marijuana on spinal cord injured males. *Paraplegia* 1974;12:175.

# Spasticity – Different Causes

## Controlled Studies

### Cannabis (oral, sublingual)

- Wade DT, Robson P, House H, Makela P, Aram J. A preliminary controlled study to determine whether whole-plant cannabis extracts can improve intractable neurogenic symptoms. *Clinical Rehabilitation* 2003;17:18-26.

## Uncontrolled Studies

### Dronabinol

- Brenneisen R, Egli A, Elsohly MA, Henn V, Spiess Y. The effect of orally and rectally administered delta-9-tetrahydrocannabinol on spasticity: a pilot study with 2 patients. *International Journal of Clinical Pharmacology and Therapeutics* 1996;34:446-452.

## Case Reports, Surveys

### Dronabinol

- Lorenz R. A casuistic rationale for the treatment of spastic and myocloni in a childhood neurodegenerative disease: neuronal ceroid lipofuscinosis of the type Jansky-Bielschowsky. *Neuro Endocrinol Lett* 2002;23(5-6):387-90.

### Cannabis (smoked)

- Petro DJ. Marijuana as a therapeutic agent for muscle spasm or spasticity. *Psychosomatics* 1980;21:81-85.
- Randall RC, ed. *Muscle Spasm, Pain & Marijuana Therapy*. Washington, DC: Galen Press, 1991.

# Pain – Chronic, Neuropathic/Multiple Sclerosis

## Controlled Studies

### Dronabinol

- Brenneisen R, Egli A, Elsohly MA, Henn V, Spiess Y. The effect of orally and rectally administered delta-9-tetrahydrocannabinol on spasticity: a pilot study with 2 patients. *International Journal of Clinical Pharmacology and Therapeutics* 1996;34:446-452.
- Maurer M, Henn V, Dittrich A, Hofmann A. Delta-9-THC shows antispastic and analgesic effects in a single case double blind trial. *European Archives of Psychiatry and Clinical Neuroscience* 1990;240:1-4.
- Wade DT, Robson P, House H, Makela P, Aram J. A preliminary controlled study to determine whether whole-plant cannabis extracts can improve intractable neurogenic symptoms. *Clinical Rehabilitation* 2003;17:18-26.
- Berman JS, Symonds C, Birch R. Efficacy of two cannabis based medicinal extracts for relief of central neuropathic pain from brachial plexus avulsion: results of a randomised controlled trial. *Pain* 2004;112(3):299-306.
- Svendsen KB, Jensen TS, Bach FW. Does the cannabinoid dronabinol reduce central pain in multiple sclerosis? Randomised double blind placebo controlled crossover trial. *BMJ* 2004;329(7460):253.

### Nabilone

- Wissel J, Haydn T, Müller J, Brenneis C, Berger T, Poewe W, Schelosky LD. Low dose treatment with the synthetic cannabinoid Nabilone significantly reduces spasticity-related pain : a double-blind placebo-controlled cross-over trial. *J Neurol* 2006;253(10):1337-41.
- Frank B, Serpell MG, Hughes J, Matthews JN, Kapur D. Comparison of analgesic effects and patient tolerability of nabilone and dihydrocodeine for chronic neuropathic pain: randomised, crossover, double blind study. *BMJ* 2008;336(7637):199-201.

### Cannabis (oral, sublingual)

- Wade DT, Robson P, House H, Makela P, Aram J. A preliminary controlled study to determine whether whole-plant cannabis extracts can improve intractable neurogenic symptoms. *Clinical Rehabilitation* 2003;17:18-26.
- Berman J, Lee J, Cooper M, Cannon A, Sach J, McKerral S, Taggart M, Symonds C, Fishel K, Birch R. Efficacy of two cannabis-based medicinal extracts for relief of central neuropathic pain from brachial plexus avulsion: results of a randomised controlled trial. *Anaesthesia*, 2003;58:938.
- Rog DJ, Nurmikko TJ, Friede T, Young CA. Randomized, controlled trial of cannabis-based medicine in central pain in multiple sclerosis. *Neurology* 2005;65(6):812-9.
- Ernst G, Denke C, Reif M, Schnelle M, Hagmeister H. Standardized cannabis extract in the treatment of postherpetic neuralgia: a randomized, double-blind, placebo-controlled cross-over study. *IACM 3rd Conference on Cannabinoids in Medicine*, 9-10 September 2005, Leiden, International Association for Cannabis as Medicine.
- Nurmikko TJ, Serpell MG, Hoggart B, Toomey PJ, Morlion BJ, Haines D. Sativex successfully treats

neuropathic pain characterised by allodynia: a randomised, double-blind, placebo-controlled clinical trial. *Pain* 2007;133(1-3):210-20.

### **Cannabis (smoked)**

- Abrams DI, Jay CA, Shade SB, Vizoso H, Reda H, Press S, Kelly ME, Rowbotham MC, Petersen KL. Cannabis in painful HIV-associated sensory neuropathy: A randomized placebo-controlled trial. *Neurology* 2007;68(7):515-21.
- Wilsey B, Marcotte T, Tsodikov A, Millman J, Bentley H, Gouaux B, Fishman S. A randomized, placebo-controlled, crossover trial of cannabis cigarettes in neuropathic pain. *J Pain* 2008;9(6):506-21.

### **Cannabidiol**

- Lindstrom P, Lindblom U, Boreus L. Lack of effect of cannabidiol in sustained neuropathia. Paper presented at '87 International Conference on Cannabis, Melbourne, September 2-4, 1987. Cited from: Consroe P, Sandyk R. Potential role of cannabinoids for therapy of neurological disorders. In: Murphy L, Bartke A, eds. *Marijuana/Cannabinoids. Neurobiology and Neurophysiology*. Boca Raton, CRC Press, 1992:459-524.

### **CT-3 (Ajulemic Acid)**

- Karst M, Salim K, Burstein S, Conrad I, Hoy L, Schneider U. Analgesic effect of the synthetic cannabinoid CT-3 on chronic neuropathic pain: a randomized controlled trial. *JAMA* 2003;290(13):1757-62.

## **Uncontrolled Studies**

### **Dronabinol**

- Clermont-Gnamien S, Atlani S, Attal N, Le Mercier F, Guirimand F, Brasseur L. [The therapeutic use of D9-tetrahydrocannabinol (dronabinol) in refractory neuropathic pain] [Article in French] *Presse Med* 2002;31(39 Pt 1):1840-5.
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- Attal N, Brasseur L, Guirimand D, Clermont-Gnamien S, Atlami S, Bouhassira D. Are oral cannabinoids safe and effective in refractory neuropathic pain? *Eur J Pain* 2004;8:173-177.

### **Cannabis (oral, sublingual)**

- Rog DJ, Nurmikko TJ, Young CA. Oromucosal delta-9-tetrahydrocannabinol/cannabidiol for neuropathic pain associated with multiple sclerosis: an uncontrolled, open-label, 2-year extension trial. *Clin Ther* 2007;29(9):2068-79.

# Case Reports, Surveys

## Cannabis (smoked)

- Dunn M, Davis R. The perceived effects of marijuana on spinal cord injured males. *Paraplegia* 1974;12:175.
- Consroe P, Musty R, Rein J, Tillery W, Pertwee R. The perceived effects of smoked cannabis on patients with multiple sclerosis. *European Neurology* 1997;38:44-48.
- Petro DJ. Marijuana as a therapeutic agent for muscle spasm or spasticity. *Psychosomatics* 1980;21:81-85.
- Page SA, Verhoef MJ, Stebbins RA, Metz LM, Levy JC. Cannabis use as described by people with multiple sclerosis. *Can J Neurol Sci* 2003;30(3):201-5.
- Prentiss D, Power R, Balmas G, Tzuang G, Israelski DM. Patterns of marijuana use among patients with HIV/AIDS followed in a public health care setting. *J Acquir Immune Defic Syndr* 2004;35(1):38-45.
- Woolridge E, Barton S, Samuel J, Osorio J, Dougherty A, Holdcroft A. Cannabis use in HIV for pain and other medical symptoms. *J Pain Symptom Manage* 2005;29(4):358-67.
- Chong MS, Wolff K, Wise K, Tanton C, Winstock A, Silber E. Cannabis use in patients with multiple sclerosis. *Mult Scler* 2006;12(5):646-51.

# Pain – Chronic, Cancer

## Controlled Studies

### Dronabinol

- Noyes R, Brunk SF, Baram DA, Canter A. Analgesic effects of delta-9-THC. *Journal of Clinical Pharmacology* 1975;15:139-143.
- Noyes R, Brunk ST, Avery DH, Canter A. The analgesic properties of delta-9-tetrahydrocannabinol and codeine. *Clinical Pharmacology and Therapeutics* 1975;18:84-89.
  - Johnson JR, Potts R. Cannabis-based medicines in the treatment of cancer pain: a randomised, double-blind, parallel group, placebo controlled, comparative study of the efficacy, safety and tolerability of Sativex and Tetranabinex in patients with cancer-related pain. *British Pain Society*; 2005 March 8-11; Edinburgh, Scotland.

### Cannabis (oral, sublingual)

- Johnson JR, Potts R. Cannabis-based medicines in the treatment of cancer pain: a randomised, double-blind, parallel group, placebo controlled, comparative study of the efficacy, safety and tolerability of Sativex and Tetranabinex in patients with cancer-related pain. *British Pain Society*; 2005 March 8-11; Edinburgh, Scotland.

## **Benzopyranoperidine**

- Jochimsen PR, Lawton RL, VerSteeg K, Noyes Jr R. Effect of benzopyranoperidine, a delta-9-THC congener, on pain. *Clinical Pharmacology and Therapeutics* 1978;24:223-7.

## **NIB**

- Staquet M, Gantt C, Machin D. Effect of a nitrogen analog of tetrahydrocannabinol on cancer pain. *Clinical Pharmacology and Therapeutics* 1978;23:397-401.

## **Uncontrolled Studies**

### **Dronabinol**

- Butler JR, Peek LA, Regelson W, Moore MM, Lubin LA. Treatment effects of delta-9-THC in an advanced cancer population. In: Cohen S, Stillman RC, eds. *The therapeutic potential of marijuana*. Plenum Medical Book, New York 1976.

### **Nabilone**

- Maida V. The synthetic cannabinoid nabilone improves pain and symptom management in cancer patients. Abstract of San Antonio Breast Cancer Symposium, 15 December 2006.
- Maida V, Ennis M, Irani S, Corbo M, Dolzhykov M. Adjunctive nabilone in cancer pain and symptom management: a prospective observational study using propensity scoring. *J Support Oncol* 2008;6(3):119-24.

## **Pain – Rheumatic**

### **Controlled Studies**

#### **Cannabis (oral, sublingual)**

- Blake DR, Robson P, Ho M, Jubb RW, McCabe CS. Preliminary assessment of the efficacy, tolerability and safety of a cannabis-based medicine (Sativex) in the treatment of pain caused by rheumatoid arthritis. *Rheumatology (Oxford)* 2006;45(1):50-2.

# Pain - Fibromyalgia

## Controlled Studies

### Nabilone

- Skrabek RQ, Galimova L, Ethans K, Perry D. Nabilone for the treatment of pain in fibromyalgia. *J Pain* 2008;9(2):164-73.

## Uncontrolled Studies

### Dronabinol

- Schley M, Legler A, Skopp G, Schmelz M, Konrad C, Rukwied R. Delta-9-THC based monotherapy in fibromyalgia patients on experimentally induced pain, axon reflex flare, and pain relief. *Curr Med Res Opin* 2006;22(7):1269-1276.

## Case Reports, Surveys

### Cannabis (smoked)

- Fiz J, Duran M, Langohr K, Capellà D, Farré M. Symptoms relief and improved mental health in fibromyalgia patients using cannabis. Results of an observational study. IACM 4th Conference on Cannabinoids in Medicine, 5-6 October 2007, Cologne, International Association for Cannabis as Medicine.

# Pain – Chronic

## Controlled Studies

### Dronabinol

- Notcutt W, Price M, Miller R, Newport S, Phillips C, Simmons S, Sansom C. Initial experiences with medicinal extracts of cannabis for chronic pain: results from 34 'N of 1' studies. *Anaesthesia* 2004;59(5):440-52.
- Narang S, Gibson D, Wasan AD, Ross EL, Michna E, Nedeljkovic SS, Jamison RN. Efficacy of dronabinol as an adjuvant treatment for chronic pain patients on opioid therapy. *J Pain* 2008;9(3):254-64.

### **Cannabis (oral, sublingual)**

- Holdcroft A, Smith M, Jacklin A, Hodgson H, Smith B, Newton M, Evans F. Pain relief with oral cannabinoids in familial Mediterranean fever. *Anaesthesia* 1997;52:483-488.
- Notcutt W, Price M, Miller R, Newport S, Phillips C, Simmons S, Sansom C. Initial experiences with medicinal extracts of cannabis for chronic pain: results from 34 'N of 1' studies. *Anaesthesia* 2004;59(5):440-52.

### **Cannabis (smoked)**

- Ware MA, Ducruet T, Robinson AR. Evaluation of herbal cannabis characteristics by medical users: a randomized trial. *Harm Reduct J* 2006;3(1):32

### **Nabilone**

- Pingsger M, Schimetta W, Volc D, Hiermann E, Riederer F, Polz W. [Benefits of an add-on treatment with the synthetic cannabinomimetic nabilone on patients with chronic pain - a randomized controlled trial.] [Article in German] *Wien Klin Wochenschr* 2006;118(11-12):327-35.

## **Uncontrolled Studies**

### **Nabilone**

- Hamann W, di Vadi PP. Analgesic effect of the cannabinoid analogue nabilone is not mediated by opioid receptors. *Lancet* 1999;353(9152):560.

## **Case Reports, Surveys**

### **Dronabinol**

- Elsner F, Radbruch L, Sabatowski R. [Tetrahydrocannabinol for treatment of chronic pain] [Article in German]. *Pain* 2001;15(3):200-4.

### **Cannabis (smoked)**

- Noyes R, Baram DA. Cannabis analgesia. *Comprehensive Psychiatry* 1974;15:531-535.
- Ware MA, Doyle CR, Woods R, Lynch ME, Clark AJ. Cannabis use for chronic non-cancer pain: results of a prospective survey. *Pain* 2003;102(1-2):211-216.
- Lynch ME, Clark AJ. Cannabis reduces opioid dose in the treatment of chronic non-cancer pain. *J Pain Symptom Manage* 2003;25(6):496-8.
- Howard J, Anie KA, Holdcroft A, Korn S, Davies SC. Cannabis use in sickle cell disease: a questionnaire study. *Br J Haematol* 2005;131(1):123-8.
- Russo EB, Mathre ML, Byrne A, Velin R, Bach PJ, Sanchez-Ramos J, et al. Chronic cannabis use in the Compassionate Investigational New Drug Program: An examination of benefits and adverse effects of legal

# Pain – Acute, Surgery

## Controlled Studies

### Dronabinol

- Raft D, Gregg J, Ghia J, Harris L. Effects of intravenous tetrahydrocannabinol on experimental and surgical pain: psychological correlates of the analgesic response. *Clinical Pharmacology and Therapeutics* 1977;21:26-33.
- Buggy DJ, Toogood L, Maric S, Sharpe P, Lambert DG, Rowbotham DJ. Lack of analgesic efficacy of oral delta-9-tetrahydrocannabinol in postoperative pain. *Pain* 2003;106(1-2):169-72.
- Seeling W, Kneer L, Buchele B, Gschwend JE, Maier L, Nett C, Simmet T, Steffen P, Schneider M, Rockemann M. [(9)-tetrahydrocannabinol and the opioid receptor agonist piritramide do not act synergistically in postoperative pain.] [Article in German]. *Anaesthesist* 2006;55(4):391-400.

### Cannabis (oral, sublingual)

- Holdcroft A, Maze M, Dore C, Tebbs S, Thompson S. A multicenter dose-escalation study of the analgesic and adverse effects of an oral cannabis extract (Cannador) for postoperative pain management. *Anesthesiology* 2006;104(5):1040-1046.

### Nabilone

- Beaulieu P. Effects of nabilone, a synthetic cannabinoid, on postoperative pain. *Can J Anaesth* 2006;53(8):769-75.

### Levonantradol

- Jain AK, Ryan JR, McMahon FG, Smith G. Evaluation of intramuscular levonantradol and placebo in acute postoperative pain. *Journal of Clinical Pharmacology* 1981;21(suppl 8-9):S320-S326.
- Kantor TG, Hopper M. A study of levonantradol, a cannabinol derivative, for analgesia in post operative pain. *Pain* 1981; (suppl): S37.

# Pain – Acute, Healthy Subjects

## Controlled Studies

### Dronabinol

- Naef M, Curatolo M, Petersen-Felix S, Arendt-Nielsen L, Zbinden A, Brenneisen R. The analgesic effect of oral delta-9-tetrahydrocannabinol (THC), morphine, and a THC-morphine combination in healthy subjects under experimental pain conditions. *Pain* 2003;105(1-2):79-88.
- Roberts JD, Gennings C, Shih M. Synergistic affective analgesic interaction between delta-9-tetrahydrocannabinol and morphine. *Eur J Pharmacol* 2006;530(1-2):54-8.

### Nabilone

- Redmond WJ, Goffaux P, Potvin S, Marchand S. Analgesic and antihyperalgesic effects of nabilone on experimental heat pain. *Curr Med Res Opin* 2008;24(4):1017-24.

### Cannabis (smoked)

- Greenwald MK, Stitzer ML. Antinociceptive, subjective and behavioral effects of smoked marijuana in humans. *Drug Alcohol Depend* 2000;59(3):261-75.
- Wallace M, Schulteis G, Atkinson JH, Wolfson T, Lazzaretto D, Bentley H, Gouaux B, Abramson I. Dose-dependent effects of smoked cannabis on capsaicin-induced pain and hyperalgesia in healthy volunteers. *Anesthesiology* 2007;107(5):785-796.

## Uncontrolled Studies

### Cannabis (smoked)

- Hill SY, Schwinn R, Goodwin DW, Powell B. Marijuana and pain. *J Pharmacol Exp Ther* 1974;188:415-8.
- Clark WC, Janal MN, Zeidenberg P, Nahas GG. Effects of moderate and high doses of marijuana on thermal pain: a sensory decision theory analysis. *J Clin Pharmacol* 1981;21(8-9 Suppl):299S-310S.

# Headache/Migraine

## Case Reports, Surveys

### Dronabinol

- Raby WN, Modica PA, Wolintz RJ, Murtaugh K. Dronabinol reduces signs and symptoms of idiopathic intracranial hypertension: a case report. *J Ocul Pharmacol Ther* 2006;22(1):68-75.

### Cannabis (smoked)

- Mortati K, Dworetzky B, Devinsky O. Marijuana: an effective antiepileptic treatment in partial epilepsy? A case report and review of the literature. *Rev Neurol Dis* 2007;4(2):103-6.
- Raby WN, Modica PA, Wolintz RJ, Murtaugh K. Dronabinol reduces signs and symptoms of idiopathic intracranial hypertension: a case report. *J Ocul Pharmacol Ther* 2006;22(1):68-75.

### Cannabis (historical)

- Russo EB. Hemp for headache: An in-depth historical and scientific review of cannabis in migraine treatment. *J Cannabis Ther* 2001;1(2):21-92.

# Amyotrophic Lateral Sclerosis

## Case Reports, Surveys

### Cannabis (smoked)

- Amtmann D, Weydt P, Johnson KL, Jensen MP, Carter GT. Survey of cannabis use in patients with amyotrophic lateral sclerosis. *Am J Hosp Palliat Care* 2004;21(2):95-104.

# Bladder Dysfunction

## Controlled Studies

### Dronabinol

- Hagenbach U, Ghafoor N, Brenneisen R, Luz S, Mäder M. Clinical investigation of  $\Delta$ -9-tetrahydrocannabinol (THC) as an alternative therapy for overactive bladders in spinal cord injury (SCI) patients? Abstract, 2001 Congress on Cannabis and the Cannabinoids, International Association for Cannabis as Medicine, 25-27 October 2001, Cologne, Germany.

## **Cannabis (oral, sublingual)**

- Brady CM, DasGupta R, Dalton C, Wiseman OJ, Berkley KJ, Fowler CJ. An open-label pilot study of cannabis-based extracts for bladder dysfunction in advanced multiple sclerosis. *Multiple Sclerosis* 2004;10(4):425-33.
- de Ridder D, Constantinescu CS, Fowler C, Kavia R, Sarantis N. Randomised controlled study of cannabis-based medicine (Sativex®) in patients suffering from multiple sclerosis associated detrusor overactivity. 22nd Congress of the ECTRIMS, 27-30 September 2006, Madrid, Spain.

# **Irritable Bowel Syndrome, Diarrhoea**

## **Controlled Studies (Experimental in Healthy Subjects)**

### **Dronabinol**

- Esfandyari T, Camilleri M, Busciglio I, Burton D, Baxter K, Zinsmeister AR. Effects of a cannabinoid receptor agonist on colonic motor and sensory functions in humans: a randomized, placebo-controlled study. *Am J Physiol Gastrointest Liver Physiol* 2007;293(1):G137-45.

# **Obstetrics and Gynecology**

## **Case Reports, Surveys**

### **Cannabis (historical)**

- Russo E. Cannabis treatments in obstetrics and gynecology: A historical review. *J Cannabis Ther* 2002;2(3-4):5-35.

# **Tremor**

## **Controlled Studies**

### **Dronabinol**

- Clifford DB. Tetrahydrocannabinol for tremor in multiple sclerosis. *Annals of Neurology* 1983;13:669-671.

## **Cannabis (oral, sublingual)**

- Fox P, Bain PG, Glickman S, Carroll C, Zajicek J. The effect of cannabis on tremor in patients with multiple sclerosis. *Neurology* 2004;62(7):1105-9.

# **Dystonia**

## **Uncontrolled Studies**

### **Nabilone**

- Fox SH, Kellett M, Moore AP, Crossman AR, Brotchie JM. Randomised, double-blind, placebo-controlled trial to assess the potential of cannabinoid receptor stimulation in the treatment of dystonia. *Movement Disorders* 2002;17(1):145-149.

### **Cannabidiol**

- Snider SR, Consroe P. Treatment of Meige's syndrome with cannabidiol. *Neurology* 1984;34(Suppl):147.
- Sandyk R, Snider SR, Consroe P, Elias SM. Cannabidiol in dystonic movement disorders. *Psychiatry Research* 1986;18:291.
- Consroe P, Sandyk R, Snider SR. Open label evaluation of cannabidiol in dystonic movement disorders. *International Journal of Neuroscience* 1986;30:277-282.

# **L-Dopa-induced Dyskinesia**

## **Controlled Studies**

### **Nabilone**

- Sieradzan KA, Fox SH, Dick J, Brotchie JM. The effects of the cannabinoid receptor agonist nabilone on L-DOPA induced dyskinesia in patients with idiopathic Parkinson's disease (PD). *Movement Disorders* 1998;13(Suppl 2):29.

# Hiccups (Singultus)

## Case Reports, Surveys

### Cannabis (smoked)

- Gilson I, Busalacchi M. Marijuana for intractable hiccups. *Lancet* 1998; 351(9098): 267.

# Tourette's Syndrome, Tics

## Controlled Studies

### Dronabinol

- Müller-Vahl KR, Schneider U, Koblenz A, Jobges M, Kolbe H, Daldrup T, Emrich HM. Treatment of Tourette's syndrome with Delta 9-tetrahydrocannabinol (THC): a randomized crossover trial. *Pharmacopsychiatry* 2002;35(2):57-61.
- Müller-Vahl KR, Schneider U, Prevedel H, Theloe K, Kolbe H, Daldrup T, Emrich HM. Delta 9-tetrahydrocannabinol (THC) is effective in the treatment of tics in Tourette syndrome: a 6-week randomized trial. *Journal of Clinical Psychiatry*. 2003;64(4):459-65.

## Uncontrolled Studies

### Dronabinol

- Müller-Vahl KR, Schneider U, Kolbe H, Emrich HM. Treatment of Tourette-Syndrome with delta-9-Tetrahydrocannabinol. *American Journal of Psychiatry* 1999;156:495.

## Case Reports, Surveys

### Dronabinol

- Deutsch SI, Rosse RB, Connor JM, Burket JA, Murphy ME, Fox FJ. Current status of cannabis treatment of multiple sclerosis with an illustrative case presentation of a patient with MS, complex vocal tics, paroxysmal dystonia, and marijuana dependence treated with dronabinol. *CNS Spectr* 2008;13(5):393-403.
- Müller-Vahl KR, Schneider U, Emrich HM. Combined treatment of Tourette syndrome with delta-9-THC and dopamine receptor agonists. *J Cannabis Ther* 2002;2(3-4):145-54.

### **Cannabis (smoked)**

- Müller-Vahl KR, Kolbe H, Schneider U, Emrich HM. Cannabinoids: Possible role in pathophysiology of Gilles de la Tourette-syndrome. *Acta Psychiatrica Scandinavica* 1998;97:1-5.
- Sandyk R, Awerbuch G. Marijuana and Tourette's Syndrome. *Journal of Clinical Psychopharmacology* 1988;8:444-445.
- Hemming M, Yellowlees PM. Effective treatment of Tourette's syndrome with marijuana. *J Psychopharmacol* 1993; 7: 389-91.

# **Attention-Deficit/Hyperactivity Disorder**

## **Uncontrolled Studies**

### **Cannabis (smoked)**

- Aharonovich E, Garawi F, Bisaga A, Brooks D, Raby WN, Rubin E, Nunes EV, Levin FR. Concurrent cannabis use during treatment for comorbid ADHD and cocaine dependence: effects on outcome. *Am J Drug Alcohol Abuse*. 2006;32(4):629-35.

## **Case Reports, Surveys**

### **Dronabinol**

- Strohbeck-Kuehner P, Skopp G, Mattern R. [Fitness to drive in spite (because) of THC] [Article in German]. *Arch Kriminol* 2007;220(1-2):11-9.

### **Cannabis (smoked)**

- Strohbeck-Kuehner P, Skopp G, Mattern R. [Fitness to drive in spite (because) of THC] [Article in German]. *Arch Kriminol* 2007;220(1-2):11-9.
- O'Connell TJ, Bou-Matar CB. Long term marijuana users seeking medical cannabis in California (2001-2007): demographics, social characteristics, patterns of cannabis and other drug use of 4117 applicants. *Harm Reduct J* 2007;4:16.

# Obsessive Compulsive Disorder

## Case Reports, Surveys

### Dronabinol, Cannabis (smoked)

- Schindler F, Anghelescu I, Regen F, Jockers-Scherubl M. Improvement in refractory obsessive compulsive disorder with dronabinol. *Am J Psychiatry* 2008;165(4):536-7.

# Parkinson's Disease

## Controlled Studies

### Cannabis (oral, sublingual)

- Carroll CB, Bain PG, Teare L, Liu X, Joint C, Wroath C, Parkin SG, Fox P, Wright D, Hobart J, Zajicek JP. Cannabis for dyskinesia in Parkinson disease: a randomized double-blind crossover study. *Neurology* 2004;63(7):1245-50.

## Uncontrolled Studies

### Cannabis (smoked)

- Frankel JP, Hughes A, Lees AJ, Stern GM. Marijuana for Parkinsonian tremor. *Journal of Neurology, Neurosurgery and Psychiatry* 1990;53:436.

# Huntington's Disease

## Controlled Studies

### Cannabidiol

- Consroe P, Laguna J, Allender J, Snider S, Stern L, Sandyk R, Kennedy K, Schram K. Controlled clinical trial of cannabidiol in Huntington's disease. *Pharmacology, Biochemistry and Behavior*. 1991;40(3):701-8.

# Uncontrolled Studies

## Nabilone

- ❖ Müller-Vahl KR, Schneider U, Emrich HM. Nabilone deteriorates choreatic movements in Huntington's disease. *Movement Disorders* 1999b;14:1038-40.

# Traumatic Brain Injury

## Controlled Studies

### Dexanabinol

- Maas AI, Murray G, Henney H 3rd, Kassem N, Legrand V, Mangelus M, Muizelaar JP, Stocchetti N, Knoller N; Pharmos TBI investigators. Efficacy and safety of dexanabinol in severe traumatic brain injury: results of a phase III randomised, placebo-controlled, clinical trial. *Lancet Neurol* 2006;5(1):38-45.

# Tinnitus

## Case Reports, Surveys

### Dronabinol/Cannabis (smoked)

- Raby WN, Modica PA, Wolintz RJ, Murtaugh K. Dronabinol reduces signs and symptoms of idiopathic intracranial hypertension: a case report. *J Ocul Pharmacol Ther* 2006;22(1):68-75.

# Pruritus

## Uncontrolled Studies

### Cream with Endocannabinoids

- Szepletowski JC, Szepletowski T, Reich A. Efficacy and tolerance of the cream containing structured physiological lipids with endocannabinoids in the treatment of uremic pruritus: a preliminary study. *Acta Dermatovenerol Croat* 2005;13(2):97-103.

- Ständer S, Reinhardt HW, Luger TA. [Topical cannabinoid agonists: An effective new possibility for treating chronic pruritus.] [Article in German]. *Hautarzt* 2006;57(9):801-7.

## Case Reports, Surveys

### Dronabinol

- Neff GW, O'Brien CB, Reddy KR, Bergasa NV, Regev A, Molina E, Amaro R, Rodriguez MJ, Chase V, Jeffers L, Schiff E. Preliminary observation with dronabinol in patients with intractable pruritus secondary to cholestatic liver disease. *Am J Gastroenterol* 2002;97(8):2117-9.

## Epilepsy

### Controlled Studies

#### Cannabidiol

- Cunha JM, Carlini EA, Pereira AE, Ramos OL, Pimentel C, Gagliardi R, Sanvito WL, Lander N, Mechoulam R. Chronic administration of cannabidiol to healthy volunteers and epileptic patients. *Pharmacology* 1980;21(3):175-85.

### Uncontrolled Studies

#### Cannabis (smoked)

- Consroe PF, Wood GC, Buchsbaum H. Anticonvulsant nature of marihuana smoking. *JAMA* 1975;234(3):306-7.

#### Cannabidiol

- Ames FR, Cridland S.: Anticonvulsant effect of cannabidiol [letter]. *South African Medical Journal* 1986;69:14.
- Trembly B, Sherman M. Double-blind clinical study of cannabidiol as a secondary anticonvulsant. Conference on Cannabis and Cannabinoids, Kolympari/Crete, July 1990, cited according to: Consroe P, Sandyk R. Potential role of cannabinoids for therapy of neurological disorders. In: Murphy L, Bartke A, eds. *Marijuana/Cannabinoids, Neurobiology and Neurophysiology*. Boca Raton: CRC Press 1992, 459-524. [**Commentary:** No effect of Cannabidiol (300 mg/day) in 10 patients.]
- Trembly B, Sherman M. Double-blind clinical study of cannabidiol as a secondary anticonvulsant. Conference on Cannabis and Cannabinoids, Kolympari/Crete, July 1990, cited according to: Consroe P, Sandyk R. Potential role of cannabinoids for therapy of neurological disorders. In: Murphy L, Bartke A, eds. *Marijuana/Cannabinoids, Neurobiology and Neurophysiology*. Boca Raton: CRC Press 1992, 459-524. [**Commentary:** Reduction in Reduzierung in frequency of seizures with cannabidiol (900-1200 mg/day) in one

patient.]

## Case Reports, Surveys

### Cannabis (smoked)

- Corral VL. Differential effects of medical marijuana based on strain and route of administration: A three-year observational study. *J Cannabis Ther* 2001;1(3-4):43-59.

## Intraocular Pressure - Glaucoma

### Controlled Studies

#### Cannabis (smoked)

- Crawford WJ, Merritt JC. Effects of tetrahydrocannabinol on arterial and intraocular hypertension. *International Journal of Clinical Pharmacology and Biopharmacy* 1979;17(5):191-196.
- Merritt JC, Crawford WJ, Alexander PC, Anduze AL, Gelbart SS. Effect of marijuana on intraocular and blood pressure in glaucoma. *Ophthalmology* 1980;87(3):222-8.

#### Dronabinol

- Tomida I, Azuara-Blanco A, House H, Flint M, Pertwee RG, Robson PJ. Effect of sublingual application of cannabinoids on intraocular pressure: a pilot study. *J Glaucoma* 2006;15(5):349-353.

#### Cannabidiol

- Tomida I, Azuara-Blanco A, House H, Flint M, Pertwee RG, Robson PJ. Effect of sublingual application of cannabinoids on intraocular pressure: a pilot study. *J Glaucoma* 2006;15(5):349-353.

### Uncontrolled Studies

#### Cannabis (smoked)

- Hepler RS, Frank IM, Petrus R. Ocular effects of marijuana smoking. In: Braude MC, Szara S, eds. *The pharmacology of marijuana*. Raven Press: New York: 1976;815-828.

# Case Reports, Surveys

## Cannabis (smoked)

- Russo EB, Mathre ML, Byrne A, Velin R, Bach PJ, Sanchez-Ramos J, et al. Chronic cannabis use in the Compassionate Investigational New Drug Program: An examination of benefits and adverse effects of legal clinical cannabis. *J Cannabis Ther* 2002;2(1):3-57.

# Topical Administration

## Dronabinol

- Merritt JC, Perry DD, Russell DN, Jones BF. Topical delta 9-tetrahydrocannabinol and aqueous dynamics in glaucoma. *Journal of Clinical Pharmacology* 1981;21(8-9 Suppl):467S-471S.

# Intraocular Pressure - Healthy Subjects

## Controlled Studies

### Dronabinol

- Cooler P, Gregg JM. Effect of delta-9-tetrahydrocannabinol on intraocular pressure in humans. *Southern Medical Journal* 1977;70(8):951-954.
- Jones RT, Benowitz N, Hering RI. The clinical relevance of cannabis tolerance and dependence. *Journal of Clinical Pharmacology* 1981;21:143S-152S.
- Levitt M, Wilson A, Bowman D, Kemel S, Krepart G, Marks V, Schipper H, Thomson G, Weinerman B, Weinerman R. Physiologic observations in a controlled clinical trial of the antiemetic effectiveness of 5, 10, and 15 mg of delta 9-tetrahydrocannabinol in cancer chemotherapy. Ophthalmologic implications. *J Clin Pharmacol* 1981;21(8-9 Suppl):103S-109S.

### Delta-9-THC, Delta-8-THC, 11-OH-THC, CBD, CBN

- Perez-Reyes M, Wagner D, Wall ME, Davis KH. Intravenous administration of cannabinoids and intraocular pressure. In: Braude MC, Szara S, ed. *Pharmacology of marijuana*. New York: Raven Press, 1976;829-832.

# Uncontrolled Studies

## Dronabinol

- Plange N, Arend KO, Kaup M, Doehmen B, Adams H, Hendricks S, Cordes A, Huth J, Sponsel WE, Remky A. Dronabinol and retinal hemodynamics in humans. *Am J Ophthalmol* 2007;143(1):173-4.

## Cannabis (smoked)

- Hepler RS, Frank IM. Marihuana smoking and intraocular pressure. *Journal of the American Medical Association* 1971;217:1392.
- Flom MC, Adams AJ, Jones RT. Marijuana smoking and reduced intraocular pressure in human eye: Drug action or epiphenomenon? *Investigative Ophthalmology* 1975;14:52-55.
- Hepler R S, Frank I M, Petrus R. Ocular effects of marijuana smoking. In: Braude MC, Szara S, eds. *The pharmacology of marihuana*. New York: Raven Press, 1976;815-828.

# Night Vision

## Controlled Studies

### Dronabinol

- Russo EB, Merzouki A, Molero Mesa J, Frey KA, Bach PJ. Cannabis improves night vision: A pilot study of dark adaptometry and scotopic sensitivity in kif smokers of the Rif Mountains of Northern Morocco. *J Ethnopharmacol* 2004;93(1):99-104.

## Uncontrolled Studies

### Cannabis (smoked)

- Russo EB, Merzouki A, Molero Mesa J, Frey KA, Bach PJ. Cannabis improves night vision: A pilot study of dark adaptometry and scotopic sensitivity in kif smokers of the Rif Mountains of Northern Morocco. *J Ethnopharmacol* 2004;93(1):99-104.

# Bronchodilation - Asthma

## Controlled Studies

### Dronabinol

- Tashkin DP, Reiss S, Shapiro BJ, Calvarese B, Olsen JL, Lodge JW. Bronchial effects of aerosolized delta 9-tetrahydrocannabinol in healthy and asthmatic subjects. *American Review of Respiratory Disease* 1977;115(1):57-65.
- Williams SJ, Hartley JP, Graham JD. Bronchodilator effect of delta1-tetrahydrocannabinol administered by aerosol of asthmatic patients. *Thorax* 1976;31(6):720-723.

### Cannabis (smoked)

- Tashkin DP, Shapiro BJ, Lee YE, Harper CE. Effects of smoked marijuana in experimentally induced asthma. *American Review of Respiratory Disease* 1975;112(3):377-386.
- Vachon L, Mikus P, Morrissey W, FitzGerald M, Gaensler E. Bronchial effect of marihuana smoke in asthma. In: Braude MC, Szara S, eds. *The pharmacology of marihuana*. Raven Press: New York: 1976;777-784.

### Nabilone

- Gong H Jr, Tashkin DP, Calvarese B. Comparison of bronchial effects of nabilone and terbutaline in healthy and asthmatic subjects. *Journal of Clinical Pharmacology* 1983;23(4):127-133

## Uncontrolled Studies

### Dronabinol

- Tashkin DP, Shapiro BJ, Frank IM. Acute effects of smoked marijuana and oral delta9-tetrahydrocannabinol on specific airway conductance in asthmatic subjects. *American Review for Respiratory Diseases*. 1974 Apr;109(4):420-8.

### Cannabis (smoked)

- Tashkin DP, Shapiro BJ, Frank IM. Acute effects of smoked marijuana and oral delta9-tetrahydrocannabinol on specific airway conductance in asthmatic subjects. *American Review for Respiratory Diseases* 1974 Apr;109(4):420-8.

# Bronchodilation - Healthy Subjects

## Controlled Studies

### Dronabinol

- Gong H Jr, Tashkin DP, Simmons MS, Calvarese B, Shapiro BJ. Acute and subacute bronchial effects of oral cannabinoids. *Clinical Pharmacology and Therapeutics* 1984;35(1):26-32.
- Tashkin DP, Reiss S, Shapiro BJ, Calvarese B, Olsen JL, Lodge JW. Bronchial effects of aerosolized delta 9-tetrahydrocannabinol in healthy and asthmatic subjects. *American Review of Respiratory Disease* 1977;115(1):57-65.

### Nabilone

- Gong H Jr, Tashkin DP, Calvarese B. Comparison of bronchial effects of nabilone and terbutaline in healthy and asthmatic subjects. *Journal of Clinical Pharmacology* 1983;23(4):127-133.

# Cancer

## Uncontrolled Studies

### Dronabinol

- Guzmán M, Duarte MJ, Blázquez C, Ravina J, Rosa MC, Galve-Roperh I, Sánchez C, Velasco G, González-Feria L. A pilot clinical study of Delta9-tetrahydrocannabinol in patients with recurrent glioblastoma multiforme. *Br J Cancer* 2006;95(2):197-203.

# Alzheimer's Disease

## Controlled Studies

### Dronabinol

- Volicer L, Stelly M, Morris J, McLaughlin J, Volicer BJ. Effects of dronabinol on anorexia and disturbed behavior in patients with Alzheimer's disease. *International Journal of Geriatric Psychiatry* 1997;12:913-919.

# Uncontrolled Studies

## Dronabinol

- Patel S, Shua-Haim JR, Pass M. Safety and efficacy of dronabinol in the treatment of agitation in patients with Alzheimer's disease with anorexia: A retrospective chart review. Abstract, 11th International Conference of the IPA, 17-22 August 2003, Chicago.
- Ross JS, Shua-Haim JR. Open-label study of dronabinol in the treatment of refractory agitation in Alzheimer's disease: a pilot study. Abstract, ASCP's 34th Annual Meeting, 12-15 November 2003, San Antonio, USA.
- Walther S, Mahlberg R, Eichmann U, Kunz D. Delta-9-tetrahydrocannabinol for nighttime agitation in severe dementia. *Psychopharmacology (Berl)* 2006;185(4):524-8.

# Schizophrenic Psychosis

## Controlled Studies

### Cannabidiol

- Leweke FM, Koethe D, Gerth CW, Nolden BM, Schreiber D, Hänsel A, Neatby MA, Juelicher A, Hellmich M, Klosterkötter J. Cannabidiol as an antipsychotic. A double-blind, controlled clinical trial on cannabidiol vs. amisulpride in acute schizophrenia. IACM 3rd Conference on Cannabinoids in Medicine, 9-10 September 2005, Leiden, International Association for Cannabis as Medicine.
- Zuardi AW, Hallak JE, Dursun SM, Morais SL, Faria Sanches R, Musty RE, Crippa JA. Cannabidiol monotherapy for treatment-resistant schizophrenia. *J Psychopharmacol* 2006;20(5):683-6.

## Uncontrolled Studies

### Cannabidiol

- Zuardi AW, Morais SL, Guimarães FS, Mechoulam R. Antipsychotic effect of cannabidiol. *Journal of Clinical Psychiatry* 1995;56:485-486.

# Bipolar Disorder

## Case Reports, Surveys

### Cannabis (smoked)

- Grinspoon L, Bakalar JB. The use of cannabis as a mood stabilizer in bipolar disorder: anecdotal evidence and the need for clinical research. *Journal of Psychoactive Drugs* 1998;30(2):171-7.
- El-Mallakh RS, Brown C. The effect of extreme marijuana use on the long-term course of bipolar I illness: a single case study. *J Psychoactive Drugs* 2007;39(2):201-2.

# Depressionen

## Controlled Studies

### Dronabinol

- Regelson W, Butler JR, Schulz J, Kirk T, Peek L, Green ML, Zalis MO. Delta-9-tetrahydrocannabinol as an effective antidepressant and appetite-stimulating agent in advanced cancer patients. In: Braude MC, Szara S, editors. *Pharmacology of marijuana*. Vol 2. New York: Raven Press, 1976. p. 763-776.

## Case Reports, Surveys

### Cannabis (smoked)

- Ware MA, Adams H, Guy GW. The medicinal use of cannabis in the UK: results of a nationwide survey. *Int J Clin Pract* 2005;59(3):291-5.

# Alcohol Dependency

## Case Reports, Surveys

### Cannabis (smoked)

- Mikuriya TH. Cannabis substitution. An adjunctive therapeutic tool in the treatment of alcoholism. *Medical Times* 1970;98(4):187-91.

- Mikuriya TH. Cannabis as a substitute for alcohol: a harm-reduction approach. *J Cannabis Ther* 2004;4(1):79-93.

# Opioid Dependency

## Case Reports, Surveys

### Cannabis (smoked)

- Hermann D, Klages E, Welzel H, Mann K, Croissant B. Low efficacy of non-opioid drugs in opioid withdrawal symptoms. *Addict Biol* 2005;10(2):165-9.
- O'Connell TJ, Bou-Matar CB. Long term marijuana users seeking medical cannabis in California (2001-2007): demographics, social characteristics, patterns of cannabis and other drug use of 4117 applicants. *Harm Reduct J* 2007;4:16.

# Cocaine/Crack Dependency

## Uncontrolled Studies

### Cannabis (smoked)

- Aharonovich E, Garawi F, Bisaga A, Brooks D, Raby WN, Rubin E, Nunes EV, Levin FR. Concurrent cannabis use during treatment for comorbid ADHD and cocaine dependence: effects on outcome. *Am J Drug Alcohol Abuse*. 2006;32(4):629-35.
- Labigalini E Jr, Rodrigues LR, Da Silveira DX. Therapeutic use of cannabis by crack addicts in Brazil. *J Psychoactive Drugs* 1999;31(4):451-5.

## Case Reports, Surveys

### Cannabis (smoked)

- Dreher M. Crack heads and roots daughters: The therapeutic use of cannabis in Jamaica. *J Cannabis Ther* 2002;2(3-4):121-33.

# Cannabis Dependency

## Controlled Studies

### Dronabinol

- Haney M, Hart CL, Vosburg SK, Nasser J, Bennett A, Zubarán C, Foltin RW. Marijuana withdrawal in humans: effects of oral THC or divalproex. *Neuropsychopharmacology* 2004;29(1):158-70.

## Case Reports, Surveys

### Dronabinol

- Levin FR, Kleber HD. Use of dronabinol for cannabis dependence: two case reports and review. *Am J Addict* 2008;17(2):161-4.

# Sleep

## Controlled Studies

### Dronabinol, Cannabidiol

- Nicholson AN, Turner C, Stone BM, Robson PJ. Effect of Delta-9-tetrahydrocannabinol and cannabidiol on nocturnal sleep and early-morning behavior in young adults. *J Clin Psychopharmacol* 2004;24(3):305-13.

# Different Diseases

## Case Reports, Surveys

### Cannabis (smoked)

- Grinspoon L, Bakalar JB. *Marihuana, the forbidden medicine*. Rev. and exp. ed. New Haven: Yale University Press; 1997.
- Randall RC, O'Leary AM. *Marijuana Rx: The patients' fight for medicinal pot*. New York: Thunder's Mouth Press; 1998.

- Corral VL. Differential effects of medical marijuana based on strain and route of administration: A three-year observational study. *J Cannabis Ther* 2001;1(3-4):43-59.
- Grotenhermen F, Schnelle M. Survey on the medical use of cannabis and THC in Germany. *J Cannabis Ther* 2003;3(2):17-40.
- Gieringer D. Medical use of cannabis: Experience in California. In: Grotenhermen F, Russo E, editors. *Cannabis and cannabinoids: Pharmacology, toxicology, and therapeutic potential*. Binghamton, NY: Haworth Press; 2001. p. 153-70.
- Ware MA, Adams H, Guy GW. The medicinal use of cannabis in the UK: results of a nationwide survey. *Int J Clin Pract* 2005;59(3):291-5.
- Russo EB, Mathre ML, Byrne A, Velin R, Bach PJ, Sanchez-Ramos J, et al. Chronic cannabis use in the Compassionate Investigational New Drug Program: An examination of benefits and adverse effects of legal clinical cannabis. *J Cannabis Ther* 2002;2(1):3-57.
- O'Connell TJ, Bou-Matar CB. Long term marijuana users seeking medical cannabis in California (2001-2007): demographics, social characteristics, patterns of cannabis and other drug use of 4117 applicants. *Harm Reduct J* 2007;4:16.