

References - Modifiable risk factors for AMD

1. Jager RD, Mieler WF, Miller JW. Age-related macular degeneration. *N Engl J Med* 2008; 358 (24): 2606-2617.
2. Thornton J, Edwards R, Mitchell P, Harrison RA, Buchan I, Kelly SP. Smoking and age-related macular degeneration: a review of association. *Eye* 2005; 19 (9): 935-944.
3. Chang MA, Bressler SB, Munoz B, West SK. Racial differences and other risk factors for incidence and progression of age-related macular degeneration: Salisbury Eye Evaluation (SEE) Project. *Invest Ophthalmol Vis Sci* 2008; 49 (6): 2395-2402.
4. Fraser-Bell S, Wu J, Klein R, Azen SP, Varma R. Smoking, alcohol intake, estrogen use, and age-related macular degeneration in Latinos: the Los Angeles Latino Eye Study. *Am J Ophthalmol* 2006; 141 (1): 79-87.
5. Kawasaki R, Wang JJ, Ji GJ, Taylor B, Oizumi T, Daimon M, Kato T, Kawata S, Kayama T, Tano Y, Mitchell P, Yamashita H, Wong TY. Prevalence and risk factors for age-related macular degeneration in an adult Japanese population: the Funagata study. *Ophthalmology* 2008; 115 (8): 1376-81, 1381.
6. Cackett P, Wong TY, Aung T, Saw SM, Tay WT, Rochtchina E, Mitchell P, Wang JJ. Smoking, cardiovascular risk factors, and age-related macular degeneration in Asians: the Singapore Malay Eye Study. *Am J Ophthalmol* 2008; 146 (6): 960-967.
7. Krishnaiah S, Das T, Nirmalan PK, Nutheti R, Shamanna BR, Rao GN, Thomas R. Risk factors for age-related macular degeneration: findings from the Andhra Pradesh eye disease study in South India. *Invest Ophthalmol Vis Sci* 2005; 46 (12): 4442-4449.
8. Delcourt C, Diaz JL, Ponton-Sanchez A, Papoz L. Smoking and age-related macular degeneration. The POLA Study. *Pathologies Oculaires Liées à l'Age. Arch Ophthalmol* 1998; 116 (8): 1031-1035.
9. Khan JC, Thurlby DA, Shahid H, Clayton DG, Yates JR, Bradley M, Moore AT, Bird AC. Smoking and age related macular degeneration: the number of pack years of cigarette smoking is a major determinant of risk for both geographic atrophy and choroidal neovascularisation. *Br J Ophthalmol* 2006; 90 (1): 75-80.
10. Vingerling JR, Hofman A, Grobbee DE, de Jong PT. Age-related macular degeneration and smoking. The Rotterdam Study. *Arch Ophthalmol* 1996; 114 (10): 1193-1196.
11. Seddon JM, Willett WC, Speizer FE, Hankinson SE. A prospective study of cigarette smoking and age-related macular degeneration in women. *JAMA* 1996; 276 (14): 1141-1146.
12. Klein R, Klein BE, Moss SE. Relation of smoking to the incidence of age-related maculopathy. The Beaver Dam Eye Study. *Am J Epidemiol* 1998; 147 (2): 103-110.
13. Chakravarthy U, Augood C, Bentham GC, de Jong PT, Rahu M, Seland J, Soubrane G, Tomazzoli L, Topouzis F, Vingerling JR, Vioque J, Young IS, Fletcher AE. Cigarette smoking and age-related macular degeneration in the EUREYE Study. *Ophthalmology* 2007; 114 (6): 1157-1163.
14. Smith W, Mitchell P, Leeder SR. Smoking and age-related maculopathy. The Blue Mountains Eye Study. *Arch Ophthalmol* 1996; 114 (12): 1518-1523.
15. Tan JS, Mitchell P, Kifley A, Flood V, Smith W, Wang JJ. Smoking and the long-term incidence of age-related macular degeneration: the Blue Mountains Eye Study. *Arch Ophthalmol* 2007; 125 (8): 1089-1095.
16. Tomany SC, Wang JJ, van Leeuwen R, Klein R, Mitchell P, Vingerling JR, Klein BE, Smith W, de Jong PT. Risk factors for incident age-related macular degeneration: pooled findings from 3 continents. *Ophthalmology* 2004; 111 (7): 1280-1287.
17. Mitchell P, Wang JJ, Smith W, Leeder SR. Smoking and the 5-year incidence of age-related maculopathy: the Blue Mountains Eye Study. *Arch Ophthalmol* 2002; 120 (10): 1357-1363.
18. Klein R, Klein BE, Tomany SC, Moss SE. Ten-year incidence of age-related maculopathy and smoking and drinking: the Beaver Dam Eye Study. *Am J Epidemiol* 2002; 156 (7): 589-598.
19. Francis PJ, George S, Schultz DW, Rosner B, Hamon S, Ott J, Weleber RG, Klein ML, Seddon JM. The LOC387715 gene, smoking, body mass index, environmental associations with advanced age-related macular degeneration. *Hum Hered* 2007; 63 (3-4): 212-218.
20. Seddon JM, George S, Rosner B, Klein ML. CFH gene variant, Y402H, and smoking, body mass index, environmental associations with advanced age-related macular degeneration. *Hum Hered* 2006; 61 (3): 157-165.
21. Schmidt S, Hauser MA, Scott WK, Postel EA, Agarwal A, Gallins P, Wong F, Chen YS, Spencer K, Schnetz-Boutaud N, Haines JL, Pericak-Vance MA. Cigarette smoking strongly modifies the association of LOC387715 and age-related macular degeneration. *Am J Hum Genet* 2006; 78 (5): 852-864.

22. Klein R. Overview of progress in the epidemiology of age-related macular degeneration. *Ophthalmic Epidemiol* 2007; 14 (4): 184-187.
23. Beatty S, Koh H, Phil M, Henson D, Boulton M. The role of oxidative stress in the pathogenesis of age-related macular degeneration. *Surv Ophthalmol* 2000; 45 (2): 115-134.
24. Chiu CJ, Taylor A. Nutritional antioxidants and age-related cataract and maculopathy. *Exp Eye Res* 2007; 84 (2): 229-245.
25. A randomized, placebo-controlled, clinical trial of high-dose supplementation with vitamins C and E, beta carotene, and zinc for age-related macular degeneration and vision loss: AREDS report no. 8. *Arch Ophthalmol* 2001; 119 (10): 1417-1436. Erratum in: 2008; 126 (9): 1251.
26. Birlouez-Aragon I, Delcourt C, Tessier F, Papoz L. Associations of age, smoking habits and diabetes with plasma vitamin C of elderly of the POLA study. *Int J Vitam Nutr Res* 2001; 71 (1): 53-59.
27. Fletcher AE, Bentham GC, Agnew M, Young IS, Augood C, Chakravarthy U, de Jong PT, Rahu M, Seland J, Soubrane G, Tomazzoli L, Topouzis F, Vingerling JR, Vioque J. Sunlight exposure, antioxidants, and age-related macular degeneration. *Arch Ophthalmol* 2008; 126 (10): 1396-1403.
28. Delcourt C, Cristol JP, Tessier F, Leger CL, Descomps B, Papoz L. Age-related macular degeneration and antioxidant status in the POLA study. POLA Study Group. *Pathologies Oculaires Liees a l'Age*. *Arch Ophthalmol* 1999; 117 (10): 1384-1390.
29. van Leeuwen R, Boekhoorn S, Vingerling JR, Witteman JC, Klaver CC, Hofman A, de Jong PT. Dietary intake of antioxidants and risk of age-related macular degeneration. *JAMA* 2005; 294 (24): 3101-3107.
30. Whitehead AJ, Mares JA, Danis RP. Macular pigment: a review of current knowledge. *Arch Ophthalmol* 2006; 124 (7): 1038-1045. AMD.
31. Mares-Perlman JA, Brady WE, Klein R, Klein BE, Bowen P, Stacewicz-Sapuntzakis M, Palta M. Serum antioxidants and age-related macular degeneration in a population-based case-control study. *Arch Ophthalmol* 1995; 113 (12): 1518-1523.
32. Antioxidant status and neovascular age-related macular degeneration. Eye Disease Case-Control Study Group. *Arch Ophthalmol* 1993; 111 (1): 104-109. Erratum in: *Arch Ophthalmol* 1993; 111 (11): 1499. *Arch Ophthalmol* 1993; 111 (9): 1228. *Arch Ophthalmol* 1993; 111 (10): 1366.
33. Mares-Perlman JA, Fisher AI, Klein R, Palta M, Block G, Millen AE, Wright JD. Lutein and zeaxanthin in the diet and serum and their relation to age-related maculopathy in the third national health and nutrition examination survey. *Am J Epidemiol* 2001; 153 (5): 424-432.
34. Gale CR, Hall NF, Phillips DI, Martyn CN. Lutein and zeaxanthin status and risk of age-related macular degeneration. *Invest Ophthalmol Vis Sci* 2003; 44 (6): 2461-2465.
35. Delcourt C, Carriere I, Delage M, Barberger-Gateau P, Schalch W. Plasma lutein and zeaxanthin and other carotenoids as modifiable risk factors for age-related maculopathy and cataract: the POLA Study. *Invest Ophthalmol Vis Sci* 2006; 47 (6): 2329-2335.
36. VandenLangenberg GM, Mares-Perlman JA, Klein R, Klein BE, Brady WE, Palta M. Associations between antioxidant and zinc intake and the 5-year incidence of early age-related maculopathy in the Beaver Dam Eye Study. *Am J Epidemiol* 1998; 148 (2): 204-214.
37. Cho E, Hankinson SE, Rosner B, Willett WC, Colditz GA. Prospective study of lutein/zeaxanthin intake and risk of age-related macular degeneration. *Am J Clin Nutr* 2008; 87 (6): 1837-1843.
38. Tan JS, Wang JJ, Flood V, Rochtchina E, Smith W, Mitchell P. Dietary antioxidants and the long-term incidence of age-related macular degeneration: the Blue Mountains Eye Study. *Ophthalmology* 2008; 115 (2): 334-341.
39. Wang L, Gaziano JM, Norkus EP, Buring JE, Sesso HD. Associations of plasma carotenoids with risk factors and biomarkers related to cardiovascular disease in middle-aged and older women. *Am J Clin Nutr* 2008; 88 (3): 747-754.
40. Gruber M, Chappell R, Millen A, LaRowe T, Moeller SM, Iannaccone A, Kritchevsky SB, Mares J. Correlates of serum lutein + zeaxanthin: findings from the Third National Health and Nutrition Examination Survey. *J Nutr* 2004; 134 (9): 2387-2394.
41. Arterburn LM, Hall EB, Oken H. Distribution, interconversion, and dose response of n-3 fatty acids in humans. *Am J Clin Nutr* 2006; 83 (6 Suppl): 1467S-1476S.
42. SanGiovanni JP, Chew EY. The role of omega-3 long-chain polyunsaturated fatty acids in health and disease of the retina. *Prog Retin Eye Res* 2005; 24 (1): 87-138.
43. Seddon JM, Rosner B, Sperduto RD, Yannuzzi L, Haller JA, Blair NP, Willett W. Dietary fat and risk for advanced age-

related macular degeneration. *Arch Ophthalmol* 2001; 119 (8): 1191-1199.

44. SanGiovanni JP, Chew EY, Clemons TE, Davis MD, Ferris FL, III, Gensler GR, Kurinij N, Lindblad AS, Milton RC, Seddon JM, Sperduto RD. The relationship of dietary lipid intake and age-related macular degeneration in a case-control study: AREDS Report No. 20. *Arch Ophthalmol* 2007; 125 (5): 671-679.
45. Seddon JM, George S, Rosner B. Cigarette smoking, fish consumption, omega-3 fatty acid intake, and associations with age-related macular degeneration: the US Twin Study of Age-Related Macular Degeneration. *Arch Ophthalmol* 2006; 124 (7): 995-1001.
46. Mares-Perlman JA, Brady WE, Klein R, VandenLangenberg GM, Klein BE, Palta M. Dietary fat and age-related maculopathy. *Arch Ophthalmol* 1995; 113 (6): 743-748.
47. Heuberger RA, Mares-Perlman JA, Klein R, Klein BE, Millen AE, Palta M. Relationship of dietary fat to age-related maculopathy in the Third National Health and Nutrition Examination Survey. *Arch Ophthalmol* 2001; 119 (12): 1833-1838.
48. Delcourt C, Carriere I, Cristol JP, Lacroux A, Gerber M. Dietary fat and the risk of age-related maculopathy: the POLANUT study. *Eur J Clin Nutr* 2007; 61 (11): 1341-1344.
49. Augood C, Chakravarthy U, Young I, Vioque J, de Jong PT, Bentham G, Rahu M, Seland J, Soubrane G, Tomazzoli L, Topouzis F, Vingerling JR, Fletcher AE. Oily fish consumption, dietary docosahexaenoic acid and eicosapentaenoic acid intakes, and associations with neovascular age-related macular degeneration. *Am J Clin Nutr* 2008; 88 (2): 398-406.
50. Cho E, Hung S, Willett WC, Spiegelman D, Rimm EB, Seddon JM, Colditz GA, Hankinson SE. Prospective study of dietary fat and the risk of age-related macular degeneration. *Am J Clin Nutr* 2001; 73 (2): 209-218.
51. Chua B, Flood V, Rochtchina E, Wang JJ, Smith W, Mitchell P. Dietary fatty acids and the 5-year incidence of age-related maculopathy. *Arch Ophthalmol* 2006; 124 (7): 981-986.
52. Arnarsson A, Sverrisson T, Stefansson E, Sigurdsson H, Sasaki H, Sasaki K, Jonasson F. Risk factors for five-year incident age-related macular degeneration: the Reykjavik Eye Study. *Am J Ophthalmol* 2006; 142 (3): 419-428.
53. Seddon JM, Cote J, Rosner B. Progression of age-related macular degeneration: association with dietary fat, transunsaturated fat, nuts, and fish intake. *Arch Ophthalmol* 2003; 121 (12): 1728-1737. Erratum in: *Arch Ophthalmol* 2004; 122 (3): 426.
54. Sangiovanni JP, Agrón E, Meleth AD, Reed GF, Sperduto RD, Clemons TE, Chew EY; Age-Related Eye Disease Study Research Group. {omega}-3 Long-chain polyunsaturated fatty acid intake and 12-y incidence of neovascular age-related macular degeneration and central geographic atrophy: AREDS report 30, a prospective cohort study from the Age-Related Eye Disease Study. *Am J Clin Nutr* 2009; 90 (6): 1601-1607.
55. Chong EW, Kreis AJ, Wong TY, Simpson JA, Guymer RH. Dietary omega-3 fatty acid and fish intake in the primary prevention of age-related macular degeneration: a systematic review and meta-analysis. *Arch Ophthalmol* 2008; 126 (6): 826-833.
56. Robman L, Vu H, Hodge A, Tikellis G, Dimitrov P, McCarty C, Guymer R. Dietary lutein, zeaxanthin, and fats and the progression of age-related macular degeneration. *Can J Ophthalmol* 2007; 42 (5): 720-726.
57. Parekh N, Volland RP, Moeller SM, Blodi BA, Ritenbaugh C, Chappell RJ, Wallace RB, Mares JA. Association between dietary fat intake and age-related macular degeneration in the Carotenoids in Age-Related Eye Disease Study (CAREDS): an ancillary study of the Women's Health Initiative. *Arch Ophthalmol* 2009; 127 (11): 1483-1493.
58. Rochtchina E, Wang JJ, Flood VM, Mitchell P. Elevated serum homocysteine, low serum vitamin B12, folate, and age-related macular degeneration: the Blue Mountains Eye Study. *Am J Ophthalmol* 2007; 143 (2): 344-346.
59. Kamburoglu G, Gumus K, Kadayifcilar S, Eldem B. Plasma homocysteine, vitamin B12 and folate levels in age-related macular degeneration. *Graefes Arch Clin Exp Ophthalmol* 2006; 244 (5): 565-569.
60. Nowak M, Swietochowska E, Wielkoszynski T, Marek B, Kos-Kudla B, Szapska B, Kajdaniuk D, Glogowska-Szelag J, Sieminska L, Ostrowska Z, Koziol H, Klimek J. Homocysteine, vitamin B12, and folic acid in age-related macular degeneration. *Eur J Ophthalmol* 2005; 15 (6): 764-767.
61. Axer-Siegel R, Bourla D, Ehrlich R, Dotan G, Benjamini Y, Gavendo S, Weinberger D, Sela BA. Association of neovascular age-related macular degeneration and hyperhomocysteinemia. *Am J Ophthalmol* 2004; 137 (1): 84-89.
62. Vine AK, Stader J, Branham K, Musch DC, Swaroop A. Biomarkers of cardiovascular disease as risk factors for age-related macular degeneration. *Ophthalmology* 2005; 112 (12): 2076-2080.
63. Seddon JM, Gensler G, Klein ML, Milton RC. Evaluation of plasma homocysteine and risk of age-related macular degeneration. *Am J Ophthalmol* 2006; 141 (1): 201-203.
64. Christen WG, Glynn RJ, Chew EY, Albert CM, Manson JE. Folic acid, pyridoxine, and cyanocobalamin combination treatment and age-related macular degeneration in women: the Women's Antioxidant and Folic Acid Cardiovascular Study. *Arch Intern Med* 2009; 169 (4): 335-341.

65. Parekh N, Chappell RJ, Millen AE, Albert DM, Mares JA. Association between vitamin D and age-related macular degeneration in the Third National Health and Nutrition Examination Survey, 1988 through 1994. *Arch Ophthalmol* 2007; 125 (5): 661-669.
66. Algvere PV, Marshall J, Seregard S. Age-related maculopathy and the impact of blue light hazard. *Acta Ophthalmol Scand* 2006; 84 (1): 4-15.
67. Taylor HR, West S, Muñoz B, Rosenthal FS, Bressler SB, Bressler NM. The long-term effects of visible light on the eye. *Arch Ophthalmol* 1992; 110 (1): 99-104.
68. Cruickshanks KJ, Klein R, Klein BE. Sunlight and age-related macular degeneration. The Beaver Dam Eye Study. *Arch Ophthalmol* 1993; 111 (4): 514-518.
69. Tomany SC, Cruickshanks KJ, Klein R, Klein BE, Knudtson MD. Sunlight and the 10-year incidence of age-related maculopathy: the Beaver Dam Eye Study. *Arch Ophthalmol* 2004; 122 (5): 750-757.
70. [No authors listed]. Risk factors for neovascular age-related macular degeneration. The Eye Disease Case-Control Study Group. *Arch Ophthalmol* 1992; 110 (12): 1701-1708.
71. McCarty CA, Mukesh BN, Fu CL, Mitchell P, Wang JJ, Taylor HR72. Risk factors for age-related maculopathy: the Visual Impairment Project. *Arch Ophthalmol* 2001; 119 (10): 1455-1462.
72. Delcourt C, Carriere I, Ponton-Sanchez A, Fourrey S, Lacroux A, Papoz L. Light exposure and the risk of age-related macular degeneration: the Pathologies Oculaires Liées a l'Age (POLA) study. *Arch Ophthalmol* 2001; 119 (10): 1463-1468.
73. Darzins P, Mitchell P, Heller RF. Sun exposure and age-related macular degeneration. An Australian case-control study. *Ophthalmology* 1997; 104 (5): 770-776.
74. Pham TQ, Rochtchina E, Mitchell P, Smith W, Wang JJ. Sunlight-related factors and the 10-year incidence of age-related maculopathy. *Ophthalmic Epidemiol* 2009; 16 (2): 136-141.
75. Pollack A, Marcovich A, Bukelman A, Oliver M. Age-related macular degeneration after extracapsular cataract extraction with intraocular lens implantation. *Ophthalmology* 1996; 103 (10): 1546-1554.
76. Ho L, Boekhoorn SS, Liana, van Duijn CM, Uitterlinden AG, Hofman A, de Jong PT, Stijnen T, Vingerling JR. Cataract surgery and the risk of aging macula disorder: the rotterdam study. *Invest Ophthalmol Vis Sci* 2008; 49 (11): 4795-800.
77. Kaiserman I, Kaiserman N, Elhayany A, Vinker S. Cataract surgery is associated with a higher rate of photodynamic therapy for age-related macular degeneration. *Ophthalmology*. 2007; 114 (2): 278-282.
78. Cugati S, Mitchell P, Rochtchina E, Tan AG, Smith W, Wang JJ. Cataract surgery and the 10-year incidence of age-related maculopathy: the Blue Mountains Eye Study. *Ophthalmology* 2006; 113 (11): 2020-2025.
79. Wang JJ, Klein R, Smith W, Klein BE, Tomany S, Mitchell P. Cataract surgery and the 5-year incidence of late-stage age-related maculopathy: pooled findings from the Beaver Dam and Blue Mountains eye studies. *Ophthalmology* 2003; 110 (10): 1960-1967.
80. Klein R, Klein BE, Wong TY, Tomany SC, Cruickshanks KJ. The association of cataract and cataract surgery with the long-term incidence of age-related maculopathy: the Beaver Dam eye study. *Arch Ophthalmol* 2002; 120 (11): 1551-1558.
81. Pham TQ, Cugati S, Rochtchina E, Mitchell P, Maloof A, Wang JJ. Early age-related maculopathy in eyes after cataract surgery. *Eye* 2007; 21 (4): 512-517.
82. Sutter FK, Menghini M, Barthelmes D, Fleischhauer JC, Kurz-Levin MM, Bosch MM, Helbig H. Is pseudophakia a risk factor for neovascular age-related macular degeneration? *Invest Ophthalmol Vis Sci* 2007;48 (4): 1472-1475.
83. Chew EY, Sperduto RD, Milton RC, Clemons TE, Gensler GR, Bressler SB, Klein R, Klein BE, Ferris FL, III. Risk of advanced age-related macular degeneration after cataract surgery in the Age-Related Eye Disease Study: AREDS report 25. *Ophthalmology* 2009; 116 (2): 297-303.
84. Braunstein RE, Sparrow JR. A blue-blocking intraocular lens should be used in cataract surgery. *Arch Ophthalmol* 2005; 123(4): 547-549.
85. Delcourt C, Korobelnik JF, Barberger Gateau P, et al. Nutrition and age-related eye diseases : the ALIENOR (Antioxydants, Lipides Essentiels, Nutrition et maladies Oculaires) Study. *Journal Nutr Health Aging*. 2010; (in press).

[View PDF](#)