



**DCCT-EDIC  
PUBLICATIONS**



### DCCT/EDIC Composite Count

Epidemiology of Diabetes Interventions and Complications (EDIC)	n = 206
Diabetes Control and Complications Trial (DCCT)	n = 64
Statistical Methodology	n = 25
<b>Total</b>	<b>n = 295</b>

### EPIDEMIOLOGY OF DIABETES INTERVENTIONS AND COMPLICATIONS (EDIC)

206. Sarma AV, Hotaling JM, de Boer IH, Dunn RL, Oerline MK, Singh K, Goldberg J, Jacobson A, Braffett BH, Herman WH, Pop-Busui R, Wessells H, and The DCCT/EDIC Research Group. Blood pressure, anti-hypertensive medication use and risk of erectile dysfunction in men with type 1 diabetes. *J Hypertens*, 2018. In press.
205. Schade DS, Lorenzi GM, Braffett BH, Gao X, Bainbridge KE, Barnie A, Cruickshanks KJ, Dalton D, Diminick L, Gubitosi-Klug R, Kramer JR, Lachin JM, Larkin ME, Cowie CC, and The DCCT/EDIC Research Group. Hearing impairment and type 1 diabetes in the DCCT/EDIC cohort. *Diabetes Care* [published online ahead of print September 25 2018].
204. Wessells H, Braffett BH, Jacobson A, Kusek J, Cowie C, Holt S, Dunn R, Sarma A, and The DCCT/EDIC Research Group. Burden of urological complications in men and women with longstanding type 1 diabetes mellitus in the DCCT/EDIC cohort. *Diabetes Care* 2018, 41(10):2170-77. PMC6150428.
203. Herman WH, Braffett BH, Kuo S, Lee JM, Brandle M, Jacobson AM, Posser LA, Lachin JM, and The DCCT/EDIC Research Group. The 30-year cost-effectiveness of alternative strategies to achieve excellent glycemic control in type 1 diabetes: an economic simulation modeled by the results of the DCCT/EDIC. *J Diabetes Complications* 2018, 32(10):934-39.
202. Herman WH, Braffett BH, Kuo S, Lee JM, Brandle M, Jacobson AM, Posser LA, Lachin JM, and The DCCT/EDIC Research Group. What are the clinical, quality-of-life, and cost consequences of 30 years of excellent vs. poor glycemic control in type 1 diabetes? *J Diabetes Complications* 2018, 32(10):911-15.
201. Roshandel D, Gubitosi-Klug R, Bull SB, Cauty AJ, Pezzolesi MG, King GL, Keenan HA, Snell-Bergeon JK, Maahs DM, Klein R, Klein BE, Orchard TJ, Costacou T, Weedon MN, DCCT/EDIC Research Group, Oram RA, Paterson AD. Meta-genome-wide association studies identify a locus on chromosome 1 and multiple variants in the MHC region for serum C-peptide in type 1 diabetes. *Diabetologia* 2018, 61(5):1098-1111. PMC5876265.
200. Kim C, Miller RS, Braffett BH, Pan Y, Arends VL, Saenger SK, Barnie A, Sarma AV, and the DCCT/EDIC Research Group. Ovarian markers and irregular menses among women with type 1 diabetes in the Epidemiology of Diabetes Interventions and Complications study. *Clin Endocrinol* 2018, 88(3):453-59. PMC5814334.
199. de Boer IH, Gao X, Bebu I, Hoofnagle AN, Lachin JM, Paterson A, Perkins BA, Saenger AK, Steffes MW, Zinman B, Molitch ME, and the DCCT/EDIC Research Group. Biomarkers of tubulointerstitial damage and function in type 1 diabetes. *BMJ Open Diabetes Res Care* 2017, 14;5(1):e000461. PMC5687553.
198. Kim C, Pan Y, Braffett BH, Arends VL, Steffes MW, Wessells H, Sarma AV, and the DCCT/EDIC Research Group. Anti-Mullerian hormone and its relationships with subclinical cardiovascular disease and renal disease in a longitudinal cohort study of women with type

- 1 diabetes. *Women's Midlife Health* 2017, 3:5.
197. Purnell JQ, Braffett BH, Zinman B, Gubitosi-Klug RA, Sivitz W, Bantle JP, Ziegler G, Cleary PA, Brunzell JD, and the DCCT/EDIC Research Group. Impact of excessive weight gain on cardiovascular outcomes in type 1 diabetes: results from the Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications (DCCT/EDIC) study. *Diabetes Care* 2017, 40(12):1756-62. PMC5711332.
  196. Palmer MR, Holt SK, Sarma AV, Dunn RL, Hotaling JM, Cleary PA, Braffett BH, Martin C, Herman WH, Jacobson AM, Wessells H, and the DCCT/EDIC Research Group. Longitudinal patterns of emergence and remission of erectile dysfunction in men with type 1 diabetes. *J Sex Med* 2017, 14(10):1187-94. PMC5624836.
  195. Bebu I, Braffett BH, Pop-Busui R, Orchard TJ, Nathan DM, Lachin JM, and the DCCT/EDIC Research Group. The relationship of blood glucose with cardiovascular disease is mediated over time by traditional risk factors in type 1 diabetes: the DCCT/EDIC study. *Diabetologia* 2017 60(10):2084-91. PMC5660661.
  194. Soliman EZ, Backlund JC, Bebu I, Orchard TJ, Zinman B, Lachin JM, and the DCCT/EDIC Research Group. Electrocardiographic abnormalities and cardiovascular disease risk in type 1 diabetes: the EDIC study. *Diabetes Care* 2017, 40(6):793-99. PMC5439417.
  193. Gubitosi-Klug RA, Braffett BH, White NH, Sherwin RS, Service FJ, Lachin JM, Tamborlane WV, and the DCCT/EDIC Research Group. The risk of severe hypoglycemia in type 1 diabetes over 30 years of follow-up in the DCCT/EDIC study. *Diabetes Care* 2017, 40(8):1010-16. PMC5521975.
  192. The DCCT/EDIC Research Group (Writing Committee: Nathan DM, Bebu I, Hainsworth D, Klein R, Tamborlane W, Lorenzi G, Gubitosi-Klug R, Lachin JM). Frequency of evidence-based screening for retinopathy in type 1 diabetes. *N Engl J Med* 2017, 376(16):1507-16. PMC5557280.
  191. Lachin JM, Bebu I, Bergenstal RM, Pop-Busui R, Service FJ, Zinman B, Nathan DM, and the DCCT/EDIC Research Group. Association of glycemic variability in type 1 diabetes with progression of microvascular outcomes in the DCCT. *Diabetes Care* 2017, 40(6):777-83. PMC5439414.
  190. Armstrong AC, Ambale-Wenkatesh B, Turkbey E, Donekal S, Chamera E, Backlund JY, Cleary PA, Lachin JM, Bluemke DA, Lima JA, and the DCCT/EDIC Research Group. Association of cardiovascular risk factors and myocardial fibrosis with early cardiac dysfunction in type 1 diabetes: the DCCT/EDIC study. *Diabetes Care* 2017, 40(3):405-11. PMC5319473.
  189. Pop-Busui R, Braffett BH, Zinman B, Martin C, White NH, Herman WH, Genuth S, Gubitosi-Klug R, and the DCCT/EDIC Research Group. Cardiovascular autonomic neuropathy and cardiovascular outcomes in the DCCT/EDIC study. *Diabetes Care* 2017, 40(1):94-100. PMC5180458.
  188. de Boer IH, Gao X, Cleary PA, Bebu I, Lachin JM, Molitch ME, Orchard T, Paterson AD, Perkins BA, Steffes MW, Zinman B, and the DCCT/EDIC Research Group. Albuminuria Changes and Cardiovascular and Renal Outcomes in Type 1 Diabetes: The DCCT/EDIC Study. *Clin J Am Soc Nephrol* 2016, 11(11):1969-77. PMC5108190.
  187. Kim C, Karvonen-Gutierrez C, Kong S, Arends V, Steffes M, McConnell DS, Randolph JF Jr, Harlow SD. Antimüllerian hormone among women with and without type 1 diabetes: the Epidemiology of Diabetes Interventions and Complications Study and the Michigan Bone Health and Metabolism Study. *Fertil Steril* 2016, 106(6):1446-52. PMC5159208.
  186. Sandholm N, Van Zuydam N, Ahlqvist E, Juliusdottir T, Deshmukh HA, Rayner NW, Di Camillo B, Forsblom C, Fadista J, Ziemek D, Salem RM, Hiraki LT, Pezzolesi M, Trégouët D, Dahlström E, Valo E, Oskolkov N, Ladenvall C, Marcovecchio ML, Cooper J, Sambo F, Malovini A, Manfrini M, McKnight AJ, Lajer M, Harjutsalo V, Gordin D, Parkkonen M; FinnDiane Study Group, Tuomilehto J, Lyssenko V, McKeigue PM, Rich SS, Brosnan MJ, Fauman E, Bellazzi R, Rossing P, Hadjadj S, Krolewski A, Paterson AD; DCCT/EDIC Research Group, Florez JC, Hirschhorn JN, Maxwell AP; GENIE Consortium, Dunger D,

- Cobelli C, Colhoun HM, Groop L, McCarthy MI, Groop PH; SUMMIT Consortium. The genetic landscape of renal complications in type 1 diabetes. *J Am Soc Nephrol* 2016, 28(2):557-74. PMC5280020.
185. Hotaling JM, Sarma AV, Patel DP, Braffett BH, Cleary PA, Feldman E, Herman WH, Martin CL, Jacobson AM, Wessells H, Pop-Busui R, and the DCCT/EDIC Research Group. Cardiovascular autonomic neuropathy, sexual dysfunction, and urinary incontinence in women with type 1 diabetes. *Diabetes Care* 2016, 39(9):1587-93. PMC5001143.
184. Hammad SM, Baker NL, El Abiad JM, Spassieva SD, Pierce JS, Rembiesa B, Bielawski J, Lopes-Virella MF, Klein RL, and the DCCT/EDIC Research Group. Increased plasma levels of select deoxy-ceramide and ceramide species are associated with increased odds of diabetic neuropathy in type 1 diabetes: a pilot study. *Neuromolecular Med* 2016, 19(1):46-56.
183. The DCCT/EDIC Research Group (Writing Committee: Lachin JM, Bebu I, Nathan DM, Zinman B, Brillon D, Backlund JC, Cleary PA, Orchard TJ). Mortality in Type 1 Diabetes in the DCCT/EDIC Versus the General Population. *Diabetes Care* 2016, 39(8):1378-83. PMC4955932.
182. The DCCT/EDIC Research Group (Writing Committee: Braffett BH, Dagogo-Jack S, Larkin M, Sivitz W, Bebu I, Kolterman O, Genuth S, Lachin JM). Coprogression of Cardiovascular Risk Factors in Type 1 Diabetes During 30 Years of Follow-up in the DCCT/EDIC Study. *Diabetes Care* 2016, 39(9):1621-30. PMC5001148.
181. Orchard TJ, Backlund JC, Costacou T, Cleary P, Lopes-Virella M, Levy AP, Lachin JM, and the DCCT/EDIC Research Group. Haptoglobin 2-2 genotype and the risk of coronary artery disease in the Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications study (DCCT/EDIC). *J Diabetes Complications* 2016, 30(8):1577-1584. PMC5050105.
180. Grassi MA, Rao VR, Chen S, Cao D, Gao X, Cleary PA, Huang RS, Paterson AD, Natarajan R, Rehman J, Kern TS, and the DCCT/EDIC Research Group. Lymphoblastoid cell lines as a tool to study inter-individual differences in the response to glucose. *PLoS One* 2016, 11(8):e0160504. PMC4979894.
179. Darabian S, Backlund JY, Cleary PA, Sheidaee N, Bebu I, Lachin JM, Budoff MJ, and the DCCT/EDIC Research Group. Significance of epicardial and intrathoracic adipose tissue volume among type 1 diabetes patients in the DCCT/EDIC: a pilot study. *PLoS One* 2016, 11(7):e0159958. PMC4961378.
178. Chen Z, Miao F, Paterson AD, Lachin JM, Zhang L, Schones DE, Wu X, Wang J, Tompkins JD, Genuth S, Braffett BH, the DCCT/EDIC Research Group, Natarajan R. Epigenomic profiling reveals an association between persistence of DNA methylation and metabolic memory in the DCCT/EDIC type 1 diabetes cohort. *Proc Natl Acad Sci* 2016, 113(21):E3002-11. PMC4890596.
177. Roshandel D, Klein R, Klein BE, Wolffenbuttel BH, van der Klauw MM, van Vliet-Ostaptchouk JV, Atzmon G, Ben-Avraham D, Crandall JP, Barzilai N, Bull SB, Canty AJ, Hosseini SM, Hiraki LT, Maynard J, Sell DR, Monnier VM, Cleary PA, Braffett BH, the DCCT/EDIC Research Group, Paterson A. New locus for skin intrinsic fluorescence in type 1 diabetes also associated with blood and skin glycosylated proteins. *Diabetes* 2016, 65(7):2060-71. PMC4915582.
176. Lenherr SM, Clemens JQ, Braffett BH, Dunn RL, Cleary PA, Kim C, Herman W, Hotaling JM, Jacobson AM, Brown JS, Wessells H, Sarma AV, and the DCCT/EDIC Research Group. Glycemic control and risk of incident urinary incontinence in women with type 1 diabetes: results from the DCCT/EDIC study. *Diabet Med* 2016, 33(11):1528-35. PMC5045319.
175. Lenherr SM, Clemens JQ, Braffett BH, Cleary PA, Dunn RL, Hotaling JM, Jacobson AM, Kim C, Herman W, Brown JS, Wessells H, Sarma AV, and the DCCT/EDIC Research Group. Glycemic control and urinary tract infections in women with type 1 diabetes: results from the DCCT/EDIC. *J Urol* 2016, 196(4):1129-35. PMC5025347.

174. Soliman EZ, Backlund JY, Bebu I, Li Y, Zhang ZM, Cleary PA, Lachin JM, and the DCCT/EDIC Research Group. Progression of electrocardiographic abnormalities in type 1 diabetes during 16 years of follow-up: the Epidemiology of Diabetes Interventions and Complications Study. *J Am Heart Assoc* 2016, 5(3):e002882. PMC4943265.
173. The DCCT/EDIC Research Group (Writing Committee: Nathan DM, Bebu I, Braffett BH, Orchard TJ, Cowie CC, Lopes-Virella M, Schutta M, Lachin JM). Risk factors for cardiovascular disease in type 1 diabetes. *Diabetes* 2016, 65(5):1370-9. PMC4829209.
172. Sell DR, Sun W, Gao X, Strauch C, Lachin JM, Cleary PA, Genuth S, and the DCCT/EDIC Research Group. Skin collagen fluorophore LW-1 versus skin fluorescence as markers for the long-term progression of subclinical macrovascular disease in type 1 diabetes. *Cardiovasc Diabetol* 2016, 15(1):30. PMC4750185.
171. Jaffa MA, Lutrell D, Schmaier AH, Klein RL, Lopes-Virella M, Lutrell LM, Jaffa AA, and the DCCT/EDIC Research Group. Plasma prekallikrein is associated with carotid intima-media thickness in type 1 diabetes. *Diabetes* 2016, 65(2):498-502. PMC4747454.
170. Porta M, Toppila I, Sandholm N, Hosseini SM, Forsblom C, Hietala K, Borio L, Harjutsalo V, Klein BE, Paterson AD, DCCT/EDIC Research Group, Groop PH, FinnDiane Study Group. Variation in A3 and protection from microvascular damage in type 1 diabetes. *Diabetes* 2015, 65(4):1022-30. PMC4806664.
169. Kim C, Dunn RL, Braffett BH, Cleary PA, Arends V, Steffes M, Lanham MS, Randolph JF, Wessells H, Wellons MF, Sarma AV, and the DCCT/EDIC Research Group. Ovarian reserve in women with type 1 diabetes in the Diabetes Control and Complications/Epidemiology of Diabetes Interventions and Complications study. *Diabet Med* 2016, 35(5):691-2. PMC4837044.
168. The DCCT/EDIC Research Group (Writing Committee: Gubitosi-Klug R, Lachin JM, Backlund JYC, Lorenzi GM, Brillon DJ, Orchard TJ). Intensive diabetes treatment and cardiovascular outcomes in type 1 diabetes: the DCCT/EDIC study 30-year follow-up. *Diabetes Care* 2016, 39(5):686-93. PMC4839174.
167. Teumer A, Tin A, Sorice R, Gorski M, Yeo NC, Chu AY, Li M, Li Y, Mijatovic V, Ko YA, Taliun D, Luciani A, Chen MH, Yang Q, Foster MC, Olden M, Hiraki LT, Tayo BO, Fuchsberger C, Dieffenbach AK, Shuldiner AR, Smith AV, Zappa AM, Lupo A, Kollerits B, Ponte B, Stengel B, Krämer BK, Paulweber B, Mitchell BD, Hayward C, Helmer C, Meisinger C, Gieger C, Shaffer CM, Müller C, Langenberg C, Ackermann D, Siscovick D; DCCT/EDIC Research Group, et al. Genome-wide association studies identify genetic loci associated with albuminuria in diabetes. *Diabetes* 2015, 65(3):803-17. PMC4764151.
166. Zhang Y, Jenkins AJ, Basu A, Stoner JA, Lopes-Virella MF, Klein RL, DCCT/EDIC Research Group, Lyons TJ. Associations between intensive diabetes therapy and NMR-determined lipoprotein subclass profiles in type 1 diabetes. *J Lipid Res* 2016, 57(2):310-7. PMC4727426.
165. Kim C, Bebu I, Braffett B, Cleary PA, Arends V, Steffes M, Wessells H, Orchard T, Sarma AV, and the DCCT/EDIC Research Group. Testosterone and cardiac mass and function in men with type 1 diabetes in the Epidemiology of Diabetes Interventions and Complications Study (EDIC). *Clin Endocrinol* 2015, 84(5):693-9. PMC4824167.
164. Hunt KJ, Baker NL, Cleary PA, Klein R, Virella G, Lopes-Virella MF, and the DCCT/EDIC Research Group. Longitudinal Association Between Endothelial Dysfunction, Inflammation, and Clotting Biomarkers With Subclinical Atherosclerosis in Type 1 Diabetes: An Evaluation of the DCCT/EDIC Cohort. *Diabetes Care* 2015, 38(7):1281-9. PMC4477339.
163. Basu A, Jenkins AJ, Zhang Y, Stoner JA, Klein RL, Lopes-Virella MF, Garvey WT, Lyons TJ, and the DCCT/EDIC Research Group. Nuclear magnetic resonance-determined lipoprotein subclasses and carotid intima-media thickness in type 1 diabetes. *Atherosclerosis* 2015, 244:93-100. PMC4823999.
162. Kim C, Pop-Busui, Braffett BH, Cleary PA, Bebu I, Wessells H, Orchard T, Sarma AV, and the DCCT/EDIC Research Group. Testosterone concentrations and cardiovascular autonomic neuropathy in men with type 1 diabetes in the Epidemiology of Diabetes

- Interventions and Complications study (EDIC). *J Sex Med* 2015, 12(11):2153-9. PMC4825316.
161. Gubitosi-Klug RA, Sun W, Cleary PA, Braffett BH, Aiello AP, Das A, Tamborlane W, Klein R, and the DCCT/EDIC Research Group. Effects of prior intensive insulin therapy and risk factors on patient-reported visual function outcomes in the Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications (DCCT/EDIC) cohort. *JAMA Ophthalmol* 2015, 134(2):137-45. PMC4825807.
  160. Lorenzi G, Braffett BH, Arends VL, Danis RP, Diminick L, Klumpp KA, Morrison AD, Soliman EZ, Steffes MW, Cleary PA, and the DCCT/EDIC Research Group. Quality control measures over 30 years in a multicenter clinical study: results from the Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications (DCCT/EDIC) study. *PLoS One* 2015, 10(11):e0141286. PMC4631458.
  159. Monnier VM, Sun W, Gao X, Sell DR, Cleary PA, Lachin JM, Genuth S, and the DCCT/EDIC Research Group. Skin collagen advanced glycation endproducts (AGEs) and the long-term progression of sub-clinical cardiovascular disease in type 1 diabetes. *Cardiovasc Diabetol* 2015, 14:118. PMC4560872.
  158. Eny KM, Orchard TJ, Miller RG, Maynard J, Grant DM, Costacou T, Cleary PA, Braffett BH, the DCCT/EDIC Research Group, and Paterson AD. Caffeine consumption contributes to skin intrinsic fluorescence in type 1 diabetes. *Diabetes Technol Ther* 2015, 17(10):726-34. PMC4575521.
  157. Jacobson AM, Braffett BH, Cleary PA, Dunn RL, Larkin ME, Wessells H, Sarma AV, and the DCCT/EDIC Research Group. The relationship of urologic complications to health-related quality of life and perceived value of health in men and women with type 1 diabetes: The Diabetes Control and Complications Trial/Epidemiology of Interventions and Complications (DCCT/EDIC) cohort. *Diabetes Care* 2015, 38(10):1904-12. PMC4580606.
  156. Bharucha AE, Batey-Schaefer B, Cleary PA, Murray JA, Cowie C, Lorenzi G, Driscoll M, Harth J, Larkin M, Christofi M, Bayless M, Wimmergren N, Herman W, Whitehouse F, Jones K, Kruger D, Martin C, Ziegler G, Zinsmeister AR, Nathan DM, and the DCCT/EDIC Research Group. Delayed gastric emptying is associated with early and long-term hyperglycemia in type 1 diabetes mellitus. *Gastroenterology* 2015, 149(2):330-9. PMC4516593.
  155. The DCCT/EDIC Research Group (Writing Committee: Aiello LP, Sun W, Das A, Gangaputra S, Kiss S, Klein R, Cleary PA, Lachin JM, Nathan DM). Intensive diabetes therapy and ocular surgery in type 1 diabetes. *N Engl J Med* 2015, 372(18):1722-33. PMC4465212.
  154. Pop-Busui R, Hotaling J, Braffett BH, Cleary PA, Dunn RL, Martin CL, Jacobson AM, Wessells H, Sarma AV, and the DCCT/EDIC Research Group. Cardiovascular autonomic neuropathy, erectile dysfunction and lower urinary tract symptoms in men with type 1 diabetes: findings from the DCCT/EDIC. *J Urol* 2015, 193(6):2045-51. PMC4439436.
  153. The DCCT/EDIC Research Group (Writing Committee: Orchard TJ, Nathan DM, Zinman B, Cleary P, Brillon D, Backlund JC, Lachin JM). Association between 7 years of intensive treatment of type 1 diabetes and long-term mortality. *JAMA* 2015, 313(1):45-53. PMC4306335.
  152. Rajab HA, Baker NL, Hunt KJ, Klein R, Cleary PA, Lachin J, Virella G, Lopes-Virella MF, and the DCCT/EDIC Research Group. The predictive role of markers on inflammation and endothelial dysfunction on the course of diabetic retinopathy in type 1 diabetes. *J Diabetes Complications* 2015, 29(1):108-14. PMC4426877.
  151. Hosseini SM, Boright AP, Sun L, Canty AJ, Bull SB, Klein BE, Klein R, the DCCT/EDIC Research Group, and Paterson AD. The association of previously reported polymorphisms for microvascular complications in a meta-analysis of diabetic retinopathy. *Hum Genet* 2015, 134(2):247-57. PMC4291513.
  150. The DCCT/EDIC Research Group (Writing Committee: Lachin JM, White N, Sun W, Cleary PA, Nathan D). Effect of intensive diabetes therapy on the progression of diabetes

- retinopathy in patients with type 1 diabetes: 18 years of follow-up in the DCCT/EDIC. *Diabetes* 2015, 64(2):631-42. PMC4303965.
149. Genuth S, Sun W, Cleary P, Gao X, Sell DR, Lachin J, and the DCCT/EDIC Research Group. Skin advanced glycation endproducts (AGEs) glucosepane and methylglyoxal hydroimidazolone are independently associated with long-term microvascular complication progress of type 1 diabetes. *Diabetes* 2015, 64(1):266-78. PMC4274803.
  148. Basu A, Jenkins AJ, Stoner JA, Thorpe SR, Klein RL, Lopes-Virella MF, Garvey WT, Lyons TJ, and the DCCT/EDIC Research Group. Plasma total homocysteine and carotid-intima-media thickness in type 1 diabetes: a prospective study. *Atherosclerosis* 2014, 236(1):188-95. PMC4134979.
  147. de Boer IH, Afkarian M, Rue TC, Cleary PA, Lachin JM, Molitch ME, Steffes MW, Sun W, Zinman B, and the DCCT/EDIC Research Group. Renal outcomes in patients with type 1 diabetes and macroalbuminuria. *J Am Soc Nephrol* 2014, 25(10):2342-50. PMC4178441.
  146. Simpson CL, Wojciechowski R, Oexle K, Murgia F, Portas L, Li X, Verhoeven VJ, Vitart V, Schache M, Hosseini SM, Hysi PG, Raffel LJ, Cotch MF, Chew E, Klein BE, Klein R, Wong TY, van Duijn CM, Mitchell P, Saw SM, Fossarello M, Wang JJ; DCCT/EDIC Research Group, Polašek O, Campbell H, Rudan I, Oostra BA, Uitterlinden AG, Hofman A, Rivadeneira F, Amin N, Karssen LC, Vingerling JR, Döring A, Bettecken T, Bencic G, Gieger C, Wichmann HE, Wilson JF, Venturini C, Fleck B, Cumberland PM, Rahi JS, Hammond CJ, Hayward C, Wright AF, Paterson AD, Baird PN, Klaver CC, Rotter JI, Pirastu M, Meitinger T, Bailey-Wilson JE, Stambolian D. Genome-wide meta-analysis of myopia and hyperopia provides evidence for replication of 11 Loci. *PLoS One* 2014, 9(9):e107110. PMC4169415.
  145. Sarma AV, Hotaling J, Dunn RL, Cleary PA, Braffett BH, Kim C, Martin C, Herman W, Gatcomb P, Jacobson AM, Holt S, Wessells H, and the DCCT/EDIC Research Group. Poor glycemic control is associated with reduced prostate-specific antigen concentrations in men with type 1 diabetes. *J Urol* 2014, 193(3):766-93. PMC4363040.
  144. McGee P, Steffes M, Nowicki M, Bayless M, Gubitosi-Klug R, Cleary P, Lachin J, Palmer J, and the DCCT/EDIC Research Group. Insulin secretion measured by stimulated C-peptide in long-established type 1 diabetes in the Diabetes Control and Complications Trial (DCCT)/Epidemiology of Diabetes Interventions and Complications (EDIC) cohort: a pilot study. *Diabet Med* 2014, 31(10):1264-8. PMC4167980.
  143. Arking DE, Pulit SL, Crotti L, van der Harst P, Munroe PB, Koopmann TT, Sotoodehnia N, Rossin EJ, Morley M, Wang X, Johnson AD, Lundby A, Gudbjartsson DF, Noseworthy PA, Eijgelsheim M, Bradford Y, Tarasov KV, Dörr M, Müller-Nurasyid M, Lahtinen AM, Nolte IM, Smith AV, Bis JC, Isaacs A, Newhouse SJ, Evans DS, Post WS, Waggott D, Lyytikäinen LP, Hicks AA, Eisele L, Ellinghaus D, Hayward C, Navarro P, Ulivi S, Tanaka T, Tester DJ, Chatel S, Gustafsson S, Kumari M, Morris RW, Naluai AT, Padmanabhan S, Kluttig A, Strohmer B, Panayiotou AG, Torres M, Knoflach M, Hubacek JA, Slowikowski K, Raychaudhuri S, Kumar RD, Harris TB, Launer LJ, Shuldiner AR, Alonso A, Bader JS, Ehret G, Huang H, Kao WH, Strait JB, Macfarlane PW, Brown M, Caulfield MJ, Samani NJ, Kronenberg F, Willeit J; CARE Consortium; COGENT Consortium, Smith JG, Greiser KH, Meyer Zu Schwabedissen H, Werdan K, Carella M, Zelante L, Heckbert SR, Psaty BM, Rotter JI, Kolcic I, Polašek O, Wright AF, Griffin M, Daly MJ; DCCT/EDIC Research Group, et al. Genetic association study of QT interval highlights role for calcium signaling pathways in myocardial repolarization. *Nat Genet* 2014, 46(8):826-36. PMC4124521.
  142. The DCCT/EDIC Research Group (Writing Committee: de Boer IH, Sun W, Gao X, Cleary PA, Lachin JM, Molitch M, Steffes MW, Zinman B). Effect of intensive diabetes treatment on albuminuria in type 1 diabetes: long-term follow-up of the Diabetes Control and Complications Trial and Epidemiology of Diabetes Interventions and Complications study. *Lancet Diabetes Endocrinol* 2014, 2(10):793-800. PMC4215637.
  141. Holt SK, Lopushnyan N, Hotaling J, Sarma AV, Dunn RL, Cleary PA, Braffett BH, Gatcomb P, Martin C, Herman WH, Wessells H, and the DCCT/EDIC Research Group. Prevalence of

- low testosterone and predisposing risk factors in men with type 1 diabetes mellitus: findings from the DCCT/EDIC. *J Clin Endocrinol Metab* 2014, 99(9):E1655-60. PMC4154094.
140. Eny KM, Lutgers HL, Maynard J, Klein BE, Lee KE, Atzmon G, Monnier VM, van Vliet-Ostaptchouk JV, Graaff R, van der Harst P, Snieder H, van der Klauw MM, Sell DR, Hosseini SM, Cleary PA, Braffett BH, Orchard TJ, Lyons TJ, Howard K, Klein R, Crandall JP, Barzilai N, Milman S, Ben-Avraham D; LifeLines Cohort Study Group; DCCT/EDIC Research Group, Wolfenbuttel BH, Paterson AD. GWAS identifies an NAT2 acetylator status tag single nucleotide polymorphism to be a major locus for skin fluorescence. *Diabetologia* 2014, 57(8):1623-34. PMC4079945.
  139. Miao F, Chen Z, Genuth S, Paterson AD, Zhang L, Wu X, Li SM, Cleary P, Riggs A, Harlan DM, Lorenzi G, Kolterman O, Sun W, Lachin JM, Natarajan R, and the DCCT/EDIC Research Group. Evaluating the role of epigenetic histone modifications in the Metabolic Memory of Type 1 Diabetes. *Diabetes* 2014, 63(5):1748-62. PMC3994951.
  138. Larkin ME, Barnie A, Braffett BH, Cleary PA, Diminick L, Harth J, Gatcomb P, Golden E, Lipps J, Lorenzi G, Mahony C, Nathan DM, and the DCCT/EDIC Research Group. Musculoskeletal Complications in Type 1 Diabetes. *Diabetes Care* 2014, 37(7):1863-9. PMC4067398.
  137. The DCCT/EDIC Research Group (Writing Committee: Nathan DM). The Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications study at 30 years: Overview. *Diabetes Care* 2014, 37(1):9-16. PMC3867989.
  136. Aiello LP, for the DCCT/EDIC Research Group. Diabetic retinopathy and other ocular findings in the Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications [DCCT/EDIC] study. *Diabetes Care* 2014, 37(1):17-23. PMC3867989.
  135. de Boer IH, for the DCCT/EDIC Research Group. Renal disease and related findings in the Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications (DCCT/EDIC) study. *Diabetes Care* 2014, 37(1):24-30. PMC3867994.
  134. Martin CL, Albers JW, Pop-Busui R, for the DCCT/EDIC Research Group. Neuropathy and related findings in the Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications (DCCT/EDIC) study. *Diabetes Care* 2014, 37(1):31-38. PMC3868000.
  133. Lachin JM, Orchard TJ, Nathan DM, for the DCCT/EDIC Research Group. Update on cardiovascular outcomes at 30 years of the Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications study. *Diabetes Care* 2014, 37(1):39-43. PMC3868002.
  132. Gubitosi-Klug RA, for the DCCT/EDIC Research Group. The Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications study at 30 years: Summary and future directions. *Diabetes Care* 2014, 37(1):44-49. PMC3867991.
  131. Lachin JM, McGee P, Palmer JP, for the DCCT/EDIC Research Group. Impact of c-peptide preservation on metabolic and clinical outcomes in The Diabetes Control and Complications Trial. *Diabetes* 2014, 63(2):739-748. PMC3900540.
  130. Nathan DM, McGee P, Steffes MW, Lachin JM, and the DCCT/EDIC Research Group. Relationship of glycated albumin to blood glucose and glycated hemoglobin (HbA1c) values and to retinopathy, nephropathy and cardiovascular outcomes in the DCCT/EDIC study. *Diabetes* 2014, 63(1):282-290. PMC3868040.
  129. Kim C, Cleary P, Cowie C, Braffett B, Dunn R, Larkin M, Gatcomb P, Wessells H, Nathan D, Sarma A, and the DCCT/EDIC Research Group. Effect of glycemic treatment and microvascular complications on menopause in women with type 1 diabetes in the Diabetes Control and Complications/Epidemiology of Diabetes Interventions and Complications (DCCT/EDIC) cohort. *Diabetes Care* 2014, 37(3):701-708. PMC3931380.
  128. Buschur E, Sarma A, Pietropaolo M, Dunn R, Braffett BH, Cleary PA, Cowie C, Larkin ME, Wessells H, Nathan DM, Kim C, and the DCCT/EDIC Research Group. Self-reported autoimmune disease by gender in the Diabetes Control and Complications/Epidemiology of

- Diabetes Interventions and Complications (DCCT/EDIC) study. *Diabetes Care* 2014, 37(2):e28-29. PMC3898756.
127. The DCCT/EDIC Research Group (Writing Committee: de Boer IH, Sun W, Cleary PA, Lachin JM, Molitch ME, Zinman B, Steffes MW). Longitudinal changes in estimated and measured GFR in type 1 diabetes. *J Am Soc Nephrol* 2014, 25(4):810-818. PMC3968500.
  126. The DCCT/EDIC Research Group (Writing Committee: Nathan DM, Bayless M, Cleary PA, Genuth S, Gubitosi-Klug R, Lachin JM, Lorenzi G, Zinman B). Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications Study at 30 years. *Diabetes* 2013, 62(12):3976-86. PMC3837056.
  125. Hunt K, Baker N, Cleary P, Backlund JY, Lyons T, Jenkins A, Virella G, Lopes-Virella M, and the DCCT/EDIC Research Group. Oxidized LDL and AGE-LDL in circulating immune complexes strongly predict progression of carotid artery IMT in type 1 diabetes. *Atherosclerosis* 2013, 231(2):315-322. PMC3924569.
  124. Jenkins AJ, Yu J, Alaupovic F, Basu A, Klein RL, Lopes-Virella M, Baker NL, Hunt KJ, Lackland DT, Garvey WT, Lyons TJ, and the DCCT/EDIC Research Group. Apolipoprotein-defined lipoproteins and apolipoproteins: Associations with abnormal albuminuria in type 1 diabetes in the Diabetes Control and Complications/Epidemiology of Diabetes Interventions and Complications cohort. *J Diabetes Complications* 2013, 27(5):447-453. PMC4064461.
  123. Jacobson AM, Braffett BH, Cleary PA, Gubitosi-Klug RA, Larkin ME, and the DCCT/EDIC Research Group. The long-term effects of type 1 diabetes treatment and complications on health-related quality of life: A 23-year follow-up of the Diabetes Control and Complications/Epidemiology of Diabetes Interventions and Complications cohort. *Diabetes Care* 2013, 36(10):3131-3138. PMC3781542.
  122. Grassi MA, Sun W, Gangaputra S, Cleary PA, Hubbard L, Lachin JM, Gao X, Kiss S, Backmeier AJ, Almony A, Davis M, Klein R, Danis R, for the DCCT/EDIC Research Group. Validity of self-report in type 1 diabetic subjects for laser treatment of retinopathy. *Ophthalmology* 2013, 120(12):2580-2586. PMC3818390.
  121. Orchard T, Lyons TJ, Cleary PA, Braffett BH, Maynard J, Cowie C, Gubitosi-Klug R, Anderson K, Barnie A, Villavicencio S, and the DCCT/EDIC Research Group. The association of skin intrinsic fluorescence with type 1 diabetes complications in the DCCT/EDIC study. *Diabetes Care* 2013, 36(10):3146-3153. PMC3781515.
  120. Cheng CY, Schache M, Ikram MK, Young TL, Guggenheim JA, Vitart V, MacGregor S, Verhoeven VJ, Barathi VA, Liao J, Hysi PG, Bailey-Wilson JE, St Pourcain B, Kemp JP, McMahon G, Timpson NJ, Evans DM, Montgomery GW, Mishra A, Wang YX, Wang JJ, Rochtchina E, Polasek O, Wright AF, Amin N, van Leeuwen EM, Wilson JF, Pennell CE, van Duijn CM, de Jong PT, Vingerling JR, Zhou X, Chen P, Li R, Tay WT, Zheng Y, Chew M; Consortium for Refractive Error and Myopia, Burdon KP, Craig JE, Iyengar SK, Igo RP Jr, Lass JH Jr; Fuchs' Genetics Multi-Center Study Group, Chew EY, Haller T, Mihailov E, Metspalu A, Wedenoja J, Simpson CL, Wojciechowski R, Höhn R, Mirshahi A, Zeller T, Pfeiffer N, Lackner KJ; Wellcome Trust Case Control Consortium 2, Bettecken T, Meitinger T, Oexle K, Pirastu M, Portas L, Nag A, Williams KM, Yonova-Doing E, Klein R, Klein BE, Hosseini SM, Paterson AD; DCCT/EDIC Research Group, Makela KM, Lehtimäki T, Kahonen M, Raitakari O, Yoshimura N, Matsuda F, Chen LJ, Pang CP, Yip SP, Yap MK, Meguro A, Mizuki N, Inoko H, Foster PJ, Zhao JH, Vithana E, Tai ES, Fan Q, Xu L, Campbell H, Fleck B, Rudan I, Aung T, Hofman A, Uitterlinden AG, Bencic G, Khor CC, Forward H, Pärssinen O, Mitchell P, Rivadeneira F, Hewitt AW, Williams C, Oostra BA, Teo YY, Hammond CJ, Stambolian D, Mackey DA, Klaver CC, Wong TY, Saw SM, Baird PN. Nine loci for ocular axial length identified through genome-wide association studies, including shared loci with refractive error. *Am J Hum Genet* 2013, 93(2):264-277. PMC3772747.
  119. Orchard T, Sun W, Cleary P, Genuth S, Lachin J, McGee P, Paterson A, Raskin P, Anbinder Y, Levy A, and the DCCT/EDIC Research Group. Haptoglobin genotype and the rate of renal function decline in the Diabetes Control and Complications Trial/Epidemiology



- of Diabetes Interventions and Complications study. *Diabetes* 2013, 62(9):3218-3223. PMC3749329.
118. Cleary PA, Braffett BH, Orchard T, Lyons TJ, Maynard J, Cowie C, Gubitosi-Klug RA, Way J, Anderson K, Barnie A, Villavicencio S, and the DCCT/EDIC Research Group. Clinical and technical factors associated with skin intrinsic fluorescence in subjects with type 1 diabetes from the DCCT/EDIC study. *Diabetes Technol Ther* 2013, 15(6):466-474. PMC4428254.
  117. Stambolian D, Wojciechowski R, Oexle K, Pirastu M, Li X, Raffel L, Cotch MF, Chew E, Klein B, Klein R, Wong T, Simpson CL, Klaver C, van Duijn C, Verhoeven V, Baird P, Vitart V, Paterson A, Mitchell P, Saw SM, Fossarello M, Kazmierkiewicz K, Murgia F, Portas L, Schache M, Richardson A, Xie J, Wang JJ, Rochtchina E, DCCT/EDIC Research Group, Viswanathan A, Hayward C, Wright A, Polašek O, Campbell H, Rudan I, Oostra B, Uitterlinden A, Hofman A, Rivadeneira F, Amin N, Karssen L, Vingerling J, Hosseini SM, Döring A, Bettecken T, Vataavuk Z, Gieger C, Wichmann H-E, Wilson J, Fleck B, Foster P, Topouzis F, McGuffin P, Sim X, Inouye M, Holliday E, Attia J, Scott R, Rotter J, Meitinger T, Bailey-Wilson J. Meta-analyses of genome-wide association studies in 5 cohorts reveals common variants in *RBFOX1*, a regulator of tissue-specific splicing, associated with refractive error. *Hum Mol Genet* 2013, 22(13):2754-2764. PMC3674806.
  116. Sachs MC, Brunzell JD, Cleary PA, Hoofnagle AN, Lachin JM, Molitch ME, Steffes MW, Zinman B, de Boer IH, and the DCCT/EDIC Research Group. Circulating vitamin D metabolites and subclinical atherosclerosis in type 1 diabetes. *Diabetes Care* 2013, 36(8):2423-2429. PMC3714470.
  115. Genuth S, Backlund JYC, Bayless M, Bluemke DA, Cleary PA, Crandall J, Lachin JM, Lima JAC, Miao C, Turkbey EB, and the DCCT/EDIC Research Group. Effects of prior intensive versus conventional therapy and history of glycemia on cardiac function in type 1 diabetes in the DCCT/EDIC. *Diabetes* 2013, 62(10):3561-3569. PMC3781466.
  114. Lopes-Virella MF, Baker NL, Hunt KJ, Cleary PA, Klein R, Virella G, and the DCCT/EDIC Research Group. Baseline markers of inflammation are associated with progression to macroalbuminuria in type 1 diabetic subjects. *Diabetes Care* 2013, 36(8):2317-2323. PMC3714479.
  113. Turkbey EB, Redheuil A, Backlund JY, Small AC, Cleary PA, Lachin JM, Lima JAC, Bluemke DA, and the DCCT/EDIC Research Group. Aortic distensibility in type 1 diabetes. *Diabetes Care* 2013, 36(8):2380-2387. PMC3714531.
  112. Verhoeven VJM, Hysi PG, Wojciechowski R, Qiao Q, Guggenheim JA, Höhn R, MacGregor S, Hewitt AW, Nag A, Cheng C-Y, Yonova-Doing E, Zhou X, Ikram, MK, Buitendijk GHS, McMahon G, Kemp JP, St. Pourcain B, Simpson CL, Mäkelä K-M, Lehtimäki T, Kähönen M, Paterson AD, Hosseini SM, Wong HS, Xu L, Jonas JB, Pärssinen O, Wedenoja J, Yip SP, Ho DWH, Pang CP, Chen LJ, Burdon KP, Craig JE, Klein BEK, Klein R, Haller T, Metspalu A, Khor C-C, Tai ES, Aung T, Vithana E, Tay W-T, Barathi VA, the CREAM Consortium, Chen P, Li R, Liao J, Zheng Y, Ong RT, Döring A, DCCT/EDIC Research Group, Evans DM, Timpson NJ, Verkerk AJMH, Meitinger T, Raitakari O, Hawthorne F, Spector TD, Karssen LC, Pirastu M, Murgia F, Ang W, Wellcome Trust Case Control Consortium 2, Mishra A, Montgomery GW, Pennell CE, Cumberland PM, Cotlarciuc I, Mitchell P, Wang JJ, Schache M, Janmahasathian S, Igo Jr, RP, Lass JH, Chew E, Iyengar SK, the Fuchs' Genetics Multi-Center Study Group, Gorgels TGMF, Rudan I, Hayward C, Wright AF, Polasek O, Vataavuk Z, Wilson JF, Fleck B, Zeller T, Mirshahi A, Müller C, Uitterlinden AG, Rivadeneira F, Vingerling JR, Hofman A, Oostra BA, Amin N, Bergen AAB, Teo Y-Y, Rahi JS, Vitart V, Williams C, Baird PN, Wong T-Y, Oexle K, Pfeiffer N, Mackey DA, Young TL, van Duijn CM, Saw S-M, Bailey Wilson JE, Stambolian D, Klaver CC, Hammond CJ. The Genome-wide meta-analyses of multi-ethnic cohorts identify multiple new susceptibility loci for refractive error and myopia. *Nat Genet* 2013, 45(3):314-318. PMC3740568.
  111. Purnell JQ, Hokanson JE, Cleary PA, Nathan DM, Lachin JM, Zinman B, Brunzell JD, and the DCCT/EDIC Research Group. The effect of excess weight gain with intensive diabetes treatment on cardiovascular disease risk factors and atherosclerosis in type 1 diabetes

- mellitus: Results from the Diabetes Control and Complications Trial / Epidemiology of Diabetes Interventions and Complications Study (DCCT/EDIC). *Circulation* 2013, 127(2):180-187. PMC3819101.
110. Pop-Busui R, Cleary PA, Braffett BH, Martin CL, Herman WH, Low PA, Lima JAC, Bluemke DA, and the DCCT/EDIC Research Group. Association between cardiovascular autonomic neuropathy and left ventricular dysfunction in the Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications (DCCT/EDIC) study. *J Am Coll Cardiol* 2013, 61(4):447-454. PMC3616477.
  109. Monnier VM, Sell DR, Strauch C, Sun W, Lachin JM, Cleary PA, Genuth S, and the DCCT/EDIC Research Group. The association between skin collagen glucosepane and past progression of microvascular and neuropathic complications in type 1 diabetes. *J Diabetes Complications* 2013, 27(2):141-149. PMC3577949.
  108. Kramer JR, Bayless ML, Lorenzi GM, Ziegler GK, Larkin ME, Lackaye ME, Harth J, Diminick LJ, Klumpp KA, Bourne PA, Anderson KL, Braffett BH, Cleary PA, and the DCCT/EDIC Research Group. Participant characteristics and study features associated with high retention rates in a longitudinal investigation of type 1 diabetes mellitus. *Clin Trials* 2012, 9(6):798-805. PMC3762976.
  107. de Boer IH, Sachs MC, Cleary PA, Hoofnagle AN, Lachin JM, Molitch ME, Steffes MW, Sun W, Zinman B, Brunzell JD, and the DCCT/EDIC Research Group. Circulating vitamin D metabolites and kidney disease in type 1 diabetes. *J Clin Endocrinol Metab* 2012, 97(12):4780-4788. PMC3513544.
  106. Chahal H, Backlund JYC, Cleary PA, Lachin JM, Polak J, Lima JAC, Bluemke DA, and the DCCT/EDIC Research Group. Relationship between carotid intima-media thickness and left ventricular mass in type 1 diabetes mellitus (from the Epidemiology of Diabetes Interventions and Complications [EDIC] study). *Am J Cardiol* 2012, 110(10):1534-1540. PMC3488435.
  105. Sandholm N, Salem RM, McKnight AJ, Brennan EP, Forsblom C, Isakova T, McKay GJ, Williams WW, Sadlier DM, Mäkinen VP, Swan EJ, Palmer C, Boright AP, Ahlqvist E, Deshmukh HA, Keller BJ, Huang H, Ahola AJ, Fagerholm E, Gordin D, Harjutsalo V, He B, Heikkilä O, Hietala K, Kytö J, Lahermo P, Lehto M, Lithovius R, Osterholm AM, Parkkonen M, Pitkäniemi J, Rosengård-Bärlund M, Saraheimo M, Sarti C, Söderlund J, Soro-Paavonen A, Syreeni A, Thorn LM, Tikkanen H, Tolonen N, Tryggvason K, Tuomilehto J, Wadén J, Gill GV, Prior S, Guiducci C, Mirel DB, Taylor A, Hosseini SM; DCCT/EDIC Research Group, Parving HH, Rossing P, Tarnow L, Ladenvall C, Alhenc-Gelas F, Lefebvre P, Rigalleau V, Roussel R, Tregouet DA, Maestroni A, Maestroni S, Falhammar H, Gu T, Möllsten A, Cimponeriu D, Ioana M, Mota M, Mota E, Serafinceanu C, Stavarachi M, Hanson RL, Nelson RG, Kretzler M, Colhoun HM, Panduru NM, Gu HF, Brismar K, Zerbini G, Hadjadj S, Marre M, Groop L, Lajer M, Bull SB, Waggott D, Paterson AD, Savage DA, Bain SC, Martin F, Hirschhorn JN, Godson C, Florez JC, Groop PH, Maxwell AP. New susceptibility loci associated with kidney disease in type 1 diabetes. *PLoS Genet* 2012, 8(9):e1002921. PMC3447939.
  104. Hotaling JM, Waggott DR, Goldberg J, Jarvik G, Paterson AD, Cleary PA, Lachin J, Sarma A, Wessells H, and the DCCT/EDIC Research Group. Pilot genome-wide association search identifies potential loci for risk of erectile dysfunction in type 1 diabetes using the DCCT/EDIC study cohort. *J Urol* 2012, 188(2):514-520. PMC3764461.
  103. Larkin ME, Lorenzi GM, Bayless M, Cleary PA, Barnie A, Golden E, Hitt S, Genuth S, and the DCCT/EDIC Research Group. Evolution of the Study Coordinator Role: The 28 year experience of the DCCT/EDIC. *Clin Trials* 2012, 9(4):418-425. PMC3815574.
  102. Herman WH, Pop-Busui R, Braffett BH, Martin CL, Cleary PA, Albers JW, Feldman EL, and the DCCT/EDIC Research Group. Use of the Michigan Neuropathy Screening Instrument as a measure of distal symmetrical peripheral neuropathy in Type 1 diabetes: Results from the Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and

- Complications (DCCT/EDIC). *Diabet Med* 2012, 29(7):937-944. PMC3641573.
101. van Koolwijk LME, Ramdas WD, Ikram MK, Jansonius NM, Pasutto F, Hysi PG, Macgregor S, Janssen SF, Hewitt AW, Viswanathan AC, Ten Brink JB, Hosseini SM, Amin N, Despriet DD, Willemse-Assink JJ, Kramer R, Rivadeneira F, Struchalin M, Aulchenko YS, Weisschuh N, Zenkel M, Mardin CY, Gramer E, Welge-Lüssen U, Montgomery GW, Carbonaro F, Young TL, DCCT/EDIC Research Group, Bellenguez C, McGuffin P, Foster PJ, Topouzis F, Mitchell P, Wang JJ, Wong TY, Czudowska MA, Hofman A, Uitterlinden AG, Wolfs RC, de Jong PT, Oostra BA, Paterson AD, Wellcome Trust Case Control Consortium 2, Mackey DA, Bergen AA, Reis A, Hammond CJ, Vingerling JR, Lemij HG, Klaver CC, van Duijn CM. Common genetic determinants of intraocular pressure and primary open-angle glaucoma. *PLoS Genet* 2012, 8(5):e1002611. PMC3342933.
  100. Lopes-Virella MF, Baker NL, Hunt KJ, Lyons TJ, Jenkins AJ, Virella G, and the DCCT/EDIC Research Group. High concentrations of AGE-LDL and oxidized LDL in circulating immune complexes are associated with progression of retinopathy in type 1 diabetes. *Diabetes Care* 2012, 35(6):1333-1340. PMC3357232.
  99. Lopes-Virella MF, Carter RE, Baker NL, Lachin J, Virella G, and the DCCT/EDIC Research Group. High levels of oxidized LDL in circulating immune complexes are associated with increased odds of developing abnormal albuminuria in Type 1 diabetes. *Nephrol Dial Transplant* 2012, 27(4):1416-1423. PMC3471550.
  98. The DCCT/EDIC Research Group (Writing Committee: de Boer IH, Sun W, Cleary PA, Lachin JL, Molitch ME, Steffes MW, Zinman B). Intensive diabetes therapy and glomerular filtration rate in type 1 diabetes. *N Engl J Med* 2011, 365(25):2366-2376. PMC3270008.
  97. Turkbey EB, Backlund JYC, Genuth S, Jain A, Miao C, Cleary PA, Lachin JM, Nathan DM, van der Geest RJ, Soliman EZ, Liu CY, Lima JAC, Bluemke DA, and the DCCT/EDIC Research Group. Myocardial structure, function and scar in patients with type 1 diabetes. *Circulation* 2011, 124(16):1737-1746. PMC 3215589.
  96. Hubbard LD, Sun W, Cleary PA, Danis RP, Hainsworth DP, Peng Q, Susman RA, Aiello LP, Davis MD, and the DCCT/EDIC Research Group. Comparison of digital and film grading of diabetic retinopathy severity in the DCCT/EDIC study. *Arch Ophthalmol* 2011, 129(6):718-726. PMID: 21670338.
  95. Gai N, Turkbey EB, Nazarian S, van der Geest RJ, Liu CY, Lima JA, Bluemke DA. T(1) Mapping of the gadolinium-enhanced myocardium: Adjustment for factors affecting interpatient comparison. *Magn Reson Med*, 2011, 65(5):1407-1415. PMC 3092826.
  94. Wessells H, Penson DF, Cleary P, Rutledge BN, Lachin JM, McVary KT, Schade DS, Sarma AV, and the DCCT/EDIC Research Group. Effect of intensive glycemic therapy on erectile function in men with type 1 diabetes. *J Urol* 2011, 185(5):1828-1834. PMC 3220602.
  93. de Boer IH, Paterson AD, Brunzell JD. Reply to letter to editor, 'Long-term renal outcomes of patients with type 1 diabetes and microalbuminuria: An analysis of the DCCT/EDIC cohort'. *Arch Intern Med* 2011, 171(5):1597. PMID:21949179.
  92. de Boer IH, Rue TC, Cleary PA, Lachin JM, Molitch ME, Steffes MW, Sun W, Zinman B, Brunzell JD, and the DCCT/EDIC Research Group. Long-term renal outcomes of patients with type 1 diabetes and microalbuminuria: An analysis of the DCCT/EDIC cohort. *Arch Intern Med* 2011,171(5):412-420. PMC 3085024.
  91. Nathan DM, Steffes MW, Sun W, Rynders GP, Lachin JM. Determining stability of stored samples retrospectively: The validation of glycosylated albumin. *Clin Chem* 2011, 57(2):286-290. PMID:21030684.
  90. Sacks DB, Nathan DM, Lachin JM. Gaps in the glycation gap hypothesis. *Clin Chem* 2011, 57(2):150-152. PMID:21127149.
  89. Jacobson AM, Ryan CM, Cleary PA, Waberski BH, Weinger K, Musen G, Dahms W, and the DCCT/EDIC Research Group. Biomedical risk factors for decreased cognitive functioning in type 1 diabetes: An 18 year follow-up of the DCCT cohort. *Diabetologia*

- 2011, 54(2):245-255. PMID:20803190.
88. Polak JF, Backlund JYC, Cleary PA, Harrington AP, O'Leary DH, Lachin JM, Nathan DM, and the DCCT/EDIC Research Group. Progression of carotid artery intima-media thickness during 12 years in the Diabetes Control and Complications Trial (DCCT)/Epidemiology of Diabetes Interventions and Complications (EDIC) study. *Diabetes* 2011, 60(2):607-613. PMC3028362.
  87. Sun L, Dimitromanolaki A, Faye LL, Paterson AD, Waggott D, DCCT/EDIC Research Group, Bull SB. BR-squared: A practical solution to the winner's curse in genome-wide scans. *Hum Genet* 2011, 129(5):545-552. PMC3074069.
  86. Wang B, Carter RE, Jaffa MA, Nakerakanti S, Lackland D, Lopes-Virella M, Trojanowska M, Luttrell LM, Jaffa AA, and the DCCT/EDIC Research Group. Genetic variant in the promoter of connective tissue growth factor gene confers susceptibility to nephropathy in type 1 diabetes. *J Med Genet.* 2011, 47(6):391-397. PMC3828650.
  85. Klein RL, Carter RE, Jenkins AJ, Lyons TJ, Baker NL, Gilbert GE, Virella G, Lopes-Virella MF, and the DCCT/EDIC Research Group. LDL-containing immune complexes in the DCCT/EDIC cohort: Associations with lipoprotein subclasses. *J Diabetes Complications* 2011, 25(2):73-82. PMC2978771.
  84. Lopes-Virella MF, Hunt KJ, Baker NL, Lachin J, Nathan DM, Virella G, and the DCCT/EDIC Research Group. Levels of oxidized LDL and advanced glycation end products-modified LDL in circulating immune complexes are strongly associated with increased levels of carotid intima-media thickness and its progression in type 1 diabetes. *Diabetes* 2011, 60(2):582-589. PMC3028359.
  83. Lopes-Virella MF, Baker NL, Hunt KJ, Lachin J, Nathan D, Virella G, and the DCCT/EDIC Research Group. Oxidized LDL Immune Complexes and Coronary Artery Calcification in Type 1 Diabetes. *Atherosclerosis* 2011, 214(2):462-467. PMC3031663.
  82. Paterson AD, Waggott D, Boright AP, Hosseini SM, Shen E, Sylvestre MP, Wong I, Bharaj B, Cleary PA, Lachin JM, MAGIC, Below JE, Nicolae D, Cox NJ, Canty AJ, Sun L, Bull SB, and the DCCT/EDIC Research Group. A genome-wide association study identifies a novel major locus for glycemic control in type 1 diabetes, as measured by both A1C and glucose. *Diabetes* 2010, 59(2):539-549. PMC2809960.
  81. Böger CA, Chen MH, Tin A, Olden M, Köttgen A, de Boer IH, Fuchsberger C, O'Seaghdha CM, Pattaro C, Teumer A, Liu CT, Glazer NL, Li M, O'Connell JR, Tanaka T, Peralta CA, Kutalik Z, Luan J, Zhao JH, Hwang SJ, Akyzbekova E, Kramer H, van der Harst P, Smith AV, Lohman K, de Andrade M, Hayward C, Kollerits B, Tönjes A, Aspelund T, Ingelsson E, Eiriksdottir G, Launer LJ, Harris TB, Shuldiner AR, Mitchell BD, Arking DE, Franceschini N, Boerwinkle E, Egan J, Hernandez D, Reilly M, Townsend RR, Lumley T, Siscovick DS, Psaty BM, Kestenbaum B, Haritunians T, Bergmann S, Vollenweider P, Waeber G, Mooser V, Waterworth D, Johnson AD, Florez JC, Meigs JB, Lu X, Turner ST, Atkinson EJ, Leak TS, Aasarød K, Skorpen F, Syvänen AC, Illig T, Baumert J, Koenig W, Krämer BK, Devuyst O, Mychaleckyj JC, Minelli C, Bakker SJ, Kedenko L, Paulweber B, Coassin S, Endlich K, Kroemer HK, Biffar R, Stracke S, Völzke H, Stumvoll M, Mägi R, Campbell H, Vitart V, Hastie ND, Gudnason V, Kardina SL, Liu Y, Polasek O, Curhan G, Kronenberg F, Prokopenko I, Rudan I, Arnlöv J, Hallan S, Navis G; the CKDGen Consortium, Parsa A, Ferrucci L, Coresh J, Shlipak MG, Bull SB, Paterson AD; DCCT/EDIC Research Group, Wichmann HE, Wareham NJ, Loos RJ, Rotter JI, Pramstaller PP, Cupples LA, Beckmann JS, Yang Q, Heid IM, Rettig R, Dreisbach AW, Bochud M, Fox CS, Kao WH. *CUBN* is a gene locus for albuminuria. *J Am Soc Nephrol* 2010, 22(3):555-570. PMC3060449.
  80. Martin CL, Waberski BH, Pop-Busui R, Cleary PA, Catton S, Albers JW, Feldman EL, Herman WH, and the DCCT/EDIC Research Group. Vibration perception threshold as a measure of distal symmetrical peripheral neuropathy in type 1 diabetes. *Diabetes Care* 2010, 33(12):2635-2641. PMC2992204.
  79. Pop-Busui R, Herman WH, Feldman EL, Low PA, Martin CL, Cleary PA, Waberski BH,

- Lachin JM, Albers JW, and the DCCT/EDIC Research Group. DCCT/EDIC Studies in Type 1 Diabetes: Lessons for diabetic neuropathy regarding metabolic memory and natural history. *Curr Diab Rep* 2010, 10(4):276-282. PMC3608672.
78. Younes N, Cleary PA, Steffes MW, de Boer IH, Molitch ME, Rutledge BN, Lachin JM, Dahms W, and the DCCT/EDIC Research Group. Comparison of urinary albumin-creatinine ratio and albumin excretion rate in the DCCT/EDIC study. *Clin J Am Soc Nephrol* 2010, 5(7):1235-1242. PMC2893069.
  77. Molitch M, Steffes M, Sun W, Rutledge B, Cleary P, de Boer IH, Zinman B, Lachin J, and the DCCT/EDIC Research Group. Development and progression of renal insufficiency with and without albuminuria in adults with type 1 diabetes mellitus in the DCCT/EDIC study. *Diabetes Care* 2010, 33(7):1536-1543. PMC2890355.
  76. Kern EF, Erhard P, Sun W, Genuth S, Weiss MF, and the DCCT/EDIC Research Group. Early urinary markers of diabetic kidney disease: A nested case-control study from the DCCT. *Am J Kid Dis* 2010, 55(5):824-834. PMC2864367.
  75. White NH, Sun W, Cleary PA, Tamborlane WV, Danis RP, Hainsworth DP, Davis MD, and the DCCT/EDIC Research Group. Effect of prior intensive therapy in type 1 diabetes on 10-year progression of retinopathy in the DCCT/EDIC: Comparison of adults and adolescents. *Diabetes* 2010, 59(5):1244-1253. PMC2857905.
  74. Albers JW, Herman WH, Feldman EL, Pop-Busui R, Martin CL, Cleary PA, Waberski BH, Lachin JM, and the DCCT/EDIC Research Group. Effect of prior intensive insulin therapy on peripheral neuropathy in type 1 diabetes. *Diabetes Care* 2010, 33(5):1090-1096. PMC2858182.
  73. Larkin ME, Backlund JC, Cleary PA, Bayless M, Schaefer BJ, Canady J, Nathan DM, and the DCCT/EDIC Research Group. Disparity in the management of Coronary Heart Disease (CHD) risk factors by sex in the Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications (DCCT/EDIC) cohort. *Diabet Med* 2010, 27(4):451-458. PMID: 20536518.
  72. Yoo YJ, Bull SB, Paterson AD, Waggott D, DCCT/EDIC Research Group, Sun L, and the DCCT/EDIC Research Group. Were genome-wide linkage studies a waste of time? Exploiting candidate regions within genome-wide association studies. *Genet Epidemiol* 2010, 34(2):107-118. PMC2811772.
  71. Jacobson AM, Paterson A, Ryan C, Cleary P, Waberski B, Weinger K, Musen G, Dahms W (past), Bayless M, Silvers N, Harth J, Boright A, and the DCCT/EDIC Research Group. The associations of apolipoprotein E and angiotensin converting enzyme polymorphisms and cognitive function in type 1 diabetes based on an 18 year follow-up of the DCCT cohort. *Diabet Med* 2010, 27(1):15-22. PMC3043372.
  70. Nathan DM, Zinman B, Cleary PA, Backlund JYC, Genuth S, Miller R, Orchard TJ, and the DCCT/EDIC Research Group. Modern-day clinical course of type 1 diabetes mellitus after 30 years duration. *Arch Intern Med* 2009, 169(14):1307-1316. PMC2866072.
  69. Pop-Busui R, Low PA, Waberski BH, Martin CL, Albers JW, Feldman EL, Sommer C, Cleary PA, Lachin JM, Herman WH, and the DCCT/EDIC Research Group. Effects of prior intensive insulin therapy on cardiac autonomic nervous system function in type 1 diabetes mellitus. *Circulation* 2009, 119(22):2886-2893. PMC2757005.
  68. Pezzolesi MG, Poznik D, Mychaleckyj JC, Paterson AD, Barati MT, Klein JB, Ng DPK, Placha G, Canani LH, Bochenski J, Waggott D, Merchant ML, Krolewski B, Mirea L, Wanik K, Katavetin P, Kure M, Wolkow P, Dunn JS, Smiles A, Walker WH, Boright AP, Bull SB, DCCT/EDIC Research Group, Doria A, Rogus JJ, Rich SS, Warram JH, and Krolewski AS. Genome-wide association scan for diabetic nephropathy susceptibility genes in type 1 diabetes. *Diabetes* 2009, 58(6):1403-1410. PMC2682673.
  67. Penson DF, Wessells H, Cleary P, Rutledge BN, and the DCCT/EDIC Research Group. Sexual dysfunction and symptom impact in men with long-standing type 1 diabetes in the DCCT/EDIC cohort. *J Sex Med* 2009, 6(7):1969-1978. PMC2861494.
  66. Sarma AV, Kanaya A, Nyberg LM, Kusek JW, Vittinghoff E, Rutledge B, Cleary PA,

- Gatcomb P, Brown JS, and the DCCT/EDIC Research Group. Risk factors for urinary incontinence among women with type 1 diabetes: Findings from the Epidemiology of Diabetes Interventions and Complications study. *Urology* 2009, 73(6):1203-1209. PMC2748226.
65. Enzlin P, Rosen R, Wiegel M, Brown J, Wessells, Gatcomb P, Rutledge B, Chan KL, Cleary PA, and the DCCT/EDIC Research Group. Sexual dysfunction in women with type 1 diabetes: Long-term findings from the DCCT/EDIC study cohort. *Diabetes Care* 2009, 32(5):780-785. PMC2671088.
  64. Van Den Eeden SK, Sarma AV, Rutledge BN, Cleary PA, Kusek JW, Nyberg LM, McVary KT, Wessells H, and the DCCT/EDIC Research Group. Effect of intensive glycemic control and diabetes complications on lower urinary tract symptoms (LUTS) in men with type 1 diabetes. *Diabetes Care* 2009, 32(4):664-670. PMC2660483.
  63. Sarma AV, Kanaya AM, Nyberg LM, Kusek JW, Vittinghoff E, Rutledge B, Cleary PA, Gatcomb P, and Brown JS, and the DCCT/EDIC Research Group. Urinary incontinence among women with type 1 diabetes – How common is it? *J Urol* 2009, 181(3):1224-1230. PMID:2696131.
  62. Czaja CA, Rutledge BN, Cleary PA, Chan K, Stapleton AE, Stamm WE, f and the DCCT/EDIC Research Group. Urinary tract infections in women with type 1 diabetes mellitus: Survey of female participants in the Epidemiology of Diabetes Interventions and Complications study cohort. *J Urol*, 2009 181(3):1129-1135. PMC2699609.
  61. Delahanty LM, Nathan DM, Lachin JM, Hu FB, Cleary PA, Ziegler GK, Wylie-Rosett J, Wexler DJ, and the DCCT/EDIC Research Group. Association of diet with glycated hemoglobin during intensive treatment of type 1 diabetes in the Diabetes Control and Complications Trial. *Am J Clin Nutr* 2009, 89(2):518-524. PMC2647518.
  60. Deeb SS, Brunzell JD. The Role of the PGC1 & Gly482Ser Polymorphism in weight gain due to intensive diabetes therapy. *PPAR Res* 2009, 9:649286. PMC2666270.
  59. Grant SFA, Qu HQ, Bradfield JP, Marchand L, Kim CE, Glessner JT, Grabs R, Taback SP, Frackelton EC, Eckert AW, Annaiah K, Lawson ML, Otieno FG, Santa E, Shaner JL, Smith RM, Skraban R, Imielinski M, Chiavacci RM, Grundmeier RW, Stanley CA, Kirsch SE, Waggott D, Paterson AD, Monos DS, and the DCCT/EDIC Research Group. Polychronakos C, Hakonarson H. Follow-up analysis of genome-wide association data identifies novel loci for type 1 diabetes. *Diabetes* 2009, 58(1):290-295. PMC2606889.
  58. Nolte IM, Wallace C, Newhouse SJ, Waggott D, Fu J, Soranzo N, Gwilliam R, Deloukas P, Savelieva I, Zheng D, Dalageorgou C, Farrall M, Samani NJ, Connell J, Brown M, Dominiczak A, Lathrop M, Zeggini E, Wain LV, The Wellcome Trust Case Control Consortium, DCCT/EDIC Research Group, Newton-Cheh C, Eijgelsheim M, Rice K, de Bakker PI, QTGEN consortium, Pfeufer A, Sanna S, Arking DE, QTSCD consortium, Asselbergs, FW, Spector TD, Carter ND, Jeffery S, Tobin M, Caulfield M, Snieder H, Paterson AD, Munroe PB, Jamshidi Y. Common genetic variation near the phospholamban gene is associated with cardiac repolarisation: meta-analysis of three genome-wide association studies. *PLoS One* 2009, 4(7):e6138. PMC2704957.
  57. Paterson AD, Lopes-Virella MF, Waggott D, Boright AP, Hosseini SM, Carter RE, Shen E, Mirea L, Bharaj B, Sun L, Bull SB, and the DCCT/EDIC Research Group. Genome-wide association identifies the ABO blood group as a major locus associated with serum levels of soluble E-Selectin. *Atheroscler Thromb Vasc Biol* 2009, 29(11):1958-1967. PMC3147250.
  56. Brock JW, Jenkins AJ, Lyons TJ, Klein RL, Yim E, Lopes-Virella M, Carter RE, DCCT/EDIC Research Group, Thorpe SR, Baynes JW. Increased methionine sulfoxide content of apoA-I in type 1 diabetes. *J Lipid Res* 2008, 49(4):847-855. PMID:18202432.
  55. Jaffa AA, Usinger WR, McHenry MB, Jaffa MA, Lipstiz SR, Lackland D, Lopes-Virella M, Luttrell LM, Wilson PW, and the DCCT/EDIC Research Group. Connective tissue growth factor and susceptibility to renal and vascular disease risk in type 1 diabetes. *J Clin Endocrinol Metab* 2008, 93(5):1893-1900. PMC2386274.

54. Virella G, Carter RE, Saad A, Crosswell EG, Game BA, DCCT/EDIC Research Group, Lopes-Virella MF. Distribution of IgM and IgG antibodies to oxidized LDL in immune complexes isolated from patients with type 1 diabetes and its relationship with nephropathy. *Clin Immunol* 2008, 127(3):394-400. PMC2601558.
53. Jenkins AJ, Rothen M, Klein RL, Moller K, Eldridge L, Zheng D, Durazo-Arvizu R, McGee D, Lackland D, Thorpe SR, Garvey WT, Lyons TJ, and the DCCT/EDIC Research Group. Cross-sectional associations of C-reactive protein with vascular risk factors and vascular complications in the DCCT/EDIC cohort. *J Diabetes Complications* 2008, 22(3), 153-163. PMID:18413218.
52. White NH, Sun W, Cleary PA, Danis RP, Davis MD, Hainsworth DP, Hubbard LD, Lachin JM, Nathan DM. Prolonged effect of intensive therapy on the risk of retinopathy complications in patients with type 1 diabetes mellitus. *Arch Ophthalmol* 2008, 126(12):1707-1715. PMC2663518.
51. Lopes-Virella MF, Carter RE, Gilbert GE, Klein RL, Jaffa M, Jenkins AJ, Lyons TJ, Garvey WT, Virella G, and the DCCT/EDIC Study Group. Risk factors related to inflammation and endothelial dysfunction in the DCCT/EDIC Cohort and their relationship with nephropathy and macrovascular complications. *Diabetes Care* 2008, 31(10):2006-2012. PMC2551645.
50. Al-Kateb H, Boright AP, Mirea L, Xie X, Sutradhar R, Mowjoodi A, Bharaj B, Liu M, Bucksa JM, Arends VL, Steffes MW, Cleary PA, Sun W, Lachin JM, Thorner PS, Ho M, McKnight AJ, Maxwell AP, Savage DA, Kidd KK, Kidd JR, Speed WC, Orchard TJ, Miller RG, Sun L, Bull SB, Paterson AD, and the DCCT/EDIC Study Group. Multiple superoxide dismutase 1/splicing factor serine alanine 15 variants are associated with the development and progression of diabetic nephropathy. *Diabetes* 2008, 57(1):218-228. PMC2655325.
49. Musen G, Jacobson A, Ryan C, Cleary P, Waberski B, Weinger K, Dahms W, Bayless M, Silver N, Harth J, White N, and the DCCT/EDIC Research Group. The impact of diabetes and its treatments on cognitive function among adolescents who participated in the DCCT. *Diabetes Care* 2008, 31(10):1933-1938. PMC2551630.
48. de Boer IH, Kestenbaum B, Rue T, Steffes M, Cleary P, Molitch M, Lachin J, Weiss N, Brunzell J, and the DCCT/EDIC Research Group. Insulin therapy, hyperglycemia, and hypertension in type 1 diabetes mellitus. *Arch Intern Med* 2008, 168(17):1867-1873. PMC2701288.
47. Lachin J, Genuth S, Nathan D, Zinman B, Rutledge B, and the DCCT/EDIC Research Group. Effect of glycemic exposure on the risk of microvascular complications in the Diabetes Control and Complications Trial – Revisited. *Diabetes* 2008, 57(4):995-1001. PMID:18223010.
46. Lin J, Glynn RJ, Rifai N, Manson JE, Ridker PM, Nathan DM, Schaumberg DA. Inflammation and progressive nephropathy in type 1 diabetes mellitus in the Diabetes Control and Complications Trial (DCCT). *Diabetes Care* 2008; 31(12):2338-2343. PMC2584192.
45. Nathan DM, Genuth S, Rutledge B and Lachin JM. Response to Comment on: Lachin et al. (2007) The hemoglobin glycation index is not an independent predictor of the risk of microvascular complications in the Diabetes Control and Complications Trial: *Diabetes* 56(7):1913–1921, 2007. *Diabetes* 2008, 57(2):e5.
44. de Boer IH, Sibley SD, Kestenbaum B, Sampson JN, Young B, Cleary PA, Steffes MW, Weiss NS, Brunzell JD, and the DCCT/EDIC Research Group. Central obesity, incident microalbuminuria, and change in creatinine clearance in the Epidemiology of Diabetes Interventions and Complications study. *J Am Soc Nephrol* 2007, 18(1):235-243. PMC2622719.
43. Carter RE, Lackland DT, Cleary PA, Yim E, Lopes-Virella MF, Gilbert GE, Orchard TJ, and the DCCT/EDIC Research Group. Intensive treatment of diabetes is associated with a reduced rate of peripheral arterial calcification in the Diabetes Control and Complications Trial. *Diabetes Care* 2007, 30(10):2646-2648. PMC2655324.
42. Albers J, Herman W, Pop-Busui R, Martin C, Cleary P, Waberski B, and the DCCT/EDIC

- Research Group. Subclinical neuropathy among diabetes Control and Complications Trial participants without diagnosable neuropathy at trial completion. *Diabetes Care* 2007, 30(10):2613-2618. PMC 2657957.
41. Sibley S, de Boer I, Steffes M, Brunzell J, and the DCCT/EDIC Research Group. Intra-abdominal fat and elevated urine albumin excretion in men with type 1 diabetes. *Diabetes Care* 2007, 30(7):1898-1900. PMC2699615.
  40. AL-Kateb H, Mirea L, Xie X, Sun L, Liu M, Chen H, Bull S, Boright AP, Paterson AD, and the DCCT/EDIC Research Group. Multiple variants in Vascular Endothelial Growth Factor (VEGFA) are risk factors for time to severe retinopathy in type 1 diabetes. *Diabetes* 2007, 56(8):2161-2168. PMID:17513698.
  39. Paterson AD, Rutledge BN, Cleary PA, Lachin JM, Crow RS, and the DCCT/EDIC Research Group. The effect of intensive diabetes treatment on resting heart rate in type 1 diabetes: The Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications study. *Diabetes Care* 2007, 30(8):2107-2112. PMC2654598.
  38. Lachin JM, Genuth S, Nathan DM, and Rutledge BN. The hemoglobin glycation index is not an independent predictor of the risk of microvascular complications in the Diabetes Control and Complications Trial. *Diabetes* 2007, 56(7):1913-1921. PMID:17360979.
  37. The DCCT/EDIC Research Group (Writing Committee: Jacobson AM, Ryan CM, Cleary P, Waberski B, Burwood A, Weinger K, Bayless M, Dahms W, Silvers N, Harth J, Munsen G). Long-term effect of diabetes and its treatment on cognitive function. *N Engl J Med* 2007, 356(18):1842-1852. PMC2701294.
  36. Lopes-Virella MF, McHenry MB, Lipsitz S, Yim E, Wilson PF, Lackland DT, Lyons T, Jenkins AJ, Virella G, and the DCCT/EDIC Research Group. Immune complexes containing modified lipoproteins are related to the progression of internal carotid intima-media thickness in patients with type 1 diabetes. *Atherosclerosis* 2007, 190(2):359-369. PMID:16530770.
  35. Murdoch SJ, Boright AP, Paterson AD, Zinman B, Steffes M, Cleary P, Edwards K, Marcovina SS, Purnell JQ, Brunzell JD, and the DCCT/EDIC Research Group. LDL composition in E2/2 subjects and LDL distribution by APOE Genotype in type 1 diabetes. *Atherosclerosis* 2007, 192(1):138-147. PMC2628303.
  34. Sibley SD, Thomas W, de Boer I, Brunzell JD, Steffes MW. Gender and elevated albumin excretion in the Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications (DCCT/EDIC) Cohort: Role of central obesity. *Am J Kidney Dis* 2006, 47(2):223-232. PMID:16431251.
  33. Yu Y, Thorpe SR, Jenkins AJ, Shaw JN, Sochaski MA, McGee D, Aston CE, Orchard TJ, Silvers N, Peng Y.G, McKnight JA, Baynes JW, Lyons TJ, and the DCCT/EDIC Research Group. Advanced glycation end-products and methionine sulphoxide in skin collagen of patients with type 1 diabetes. *Diabetologia* 2006, 49(10):2488-2498. PMID:16955213.
  32. Martin CL, Albers J, Herman WH, Cleary P, Waberski B, Greene DA, Stevens MJ, Feldman EL, and the DCCT/EDIC Research Group. Neuropathy among the Diabetes Control and Complication Trial cohort 8 years after trial completion. *Diabetes Care* 2006, 29(2):340-344. PMC2622720.
  31. Cleary PA, Orchard TA, Genuth S, Wong ND, Detrano R, Backlund JC, Zinman B, Jacobson A, Sun W, Lachin JM, Nathan DM, and the DCCT/EDIC Research Group. The effect of intensive glycemic treatment on coronary artery calcification in type 1 diabetic participants of the Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications (DCCT/EDIC) study. *Diabetes* 2006, 55(12):3556-3565. PMC2701297.
  30. Lyons TJ, Jenkins AJ, Zheng D, Klein RL, Otvos JD, Yu Y, Lackland DT, McGee D, McHenry MB, Lopes-Virella M, Garvey WT, and the DCCT/EDIC Research Group. Nuclear magnetic resonance-determined lipoprotein subclass profile in the DCCT/EDIC cohort: Associations with carotid intima-media thickness. *Diabet Med* 2006, 23(9):955-966.



- PMID:16922701.
29. Boright A, Paterson A, Mirea S, Bull S, Scherer B, Zinman B, and the DCCT/EDIC Research Group. Genetic variation at the ACE Gene is associated with persistent microalbuminuria and severe nephropathy in type 1 diabetes: The DCCT/EDIC Genetics Study. *Diabetes* 2005, 54(4):1238-1244. PMC1621110.
  28. Genuth S, Sun W, Cleary P, Sell DR, Dahms W, Malone J, Sivitz W, Monnier VM, and the DCCT/EDIC Research Group. Glycation and carboxymethyllysine levels in skin collagen predict the risk of future 10-year progression of diabetic retinopathy and nephropathy in the Diabetes Control and Complications Trial and Epidemiology of Diabetes Interventions and Complications participants with type 1 diabetes. *Diabetes* 2005, 54(11):3103-3111. PMC2622724.
  27. The DCCT/EDIC Research Group (Writing Committee: Nathan DM, Cleary PA, Backlund JY, Genuth SM, Lachin JM, Orchard TJ, Raskin P, Zinman B). Intensive diabetes treatment and cardiovascular disease in patients with type 1 diabetes. *N Engl J Med*, 2005, 353(25):2643-2653. PMC2637991.
  26. Steffes M, Cleary P, Goldstein R, Little R, Wiedmeyer H M, Rohlfing C, England J, Bucksa J, Norwicki M, and the DCCT/EDIC Research Group. Hemoglobin (HbA1c) measurements over nearly two decades: Sustaining comparable values throughout the Diabetes Control and Complications Trial and the Epidemiology of Diabetes Interventions and Complications study. *Clin Chem* 2005, 51(4):753-758. PMC2635091.
  25. Schaumberg DA, Glynn RJ, Jenkins AJ, Lyons TJ, Rifai N, Manson JE, Ridker PM, Nathan DM. Effect of intensive glycemic control on levels of markers of inflammation in Type 1 diabetes mellitus in the Diabetes Control and Complications Trial. *Circulation* 2005, 111(19):2446-2453. PMID:15867184.
  24. Klein RL, McHenry MB, Lok KH, Hunter SJ, Le NA, Jenkins AJ, Zheng D, Semler A, Page G, Brown WV, Lyons TJ, Garvey WT, and the DCCT/EDIC Research Group. Apolipoprotein C-III protein concentrations and gene polymorphisms in type 1 diabetes: Associations with microvascular disease complications in the DCCT/EDIC cohort. *J Diabetes Complications* 2005, 19(1):18-25. PMID:15642486.
  23. Klein RL, McHenry MB, Lok KH, Hunter SJ, Le NA, Jenkins AJ, Zheng D, Semler A, Brown WV, Lyons TJ, Garvey WT, and the DCCT/EDIC Research Group. Apolipoprotein C-III protein concentrations and gene polymorphisms in type 1 diabetes: associations with lipoprotein subclasses. *Metabolism* 2004, 53(10):1296-1304. PMID:15375785.
  22. Lyons TJ, Jenkins AJ, Zheng D, Lackland DT, McGee D, Garvey WT, Klein RL, and the DCCT/EDIC Research Group. Diabetic retinopathy and serum lipoprotein subclasses in the DCCT/EDIC cohort. *Invest Ophthalmol Vis Sci* 2004, 45(3):910-918. PMID: 14985310.
  21. Miljanovic B, Glynn RJ, Nathan DM, Manson JE, Schaumberg DA. A prospective study of serum lipids and risk of diabetic macular edema in type 1 diabetes. *Diabetes* 2004; 53(11): 2883-2892. PMID:15504969
  20. Purnell JQ, Dev RK, Steffes MW, Cleary PA, Palmer JP, Hirsch IB, Hokanson JE, Brunzell JD. Relationship of family history of type 2 diabetes, hypoglycemia and autoantibodies to weight gain and lipids with intensive and conventional therapy in the Diabetes Control and Complications Trial. *Diabetes* 2003, 52(10):2623-2629. PMC2632607.
  19. Purnell JQ, Tsai A, Hokanson J, Cleary PA, Steffes M, Jacobs D, Brunzell J. Weight gain with intensive therapy but not conventional therapy of type 1 diabetes in DCCT is greater than a non-diabetic population (CARDIA): Follow-up from 1985–1993. *Diabetes* 2003, 50(Suppl 2) A208.
  18. Sibley S, Palmer J, Hirsch I, Brunzell JD. Visceral obesity, hepatic lipase activity and dyslipidemia in type I diabetes. *J Clin Endocrinol Metab* 2003, 88(7):3379-3384. PMID:12843191.
  17. Cheung MC, Sibley SD, Palmer JP, Oram JF, Brunzell JD. Lipoprotein lipase and hepatic lipase: Their relationship with HDL subspecies Lp(A-I) and Lp(A-I, A-II). *J Lipid Res* 2003,

- 44(8):1552-1558. PMC2768368.
16. The DCCT/EDIC Research Group (Writing Committee: Steffes M, Molitch M, Chavers B, Cleary P, Lachin J, Genuth S, Nathan D). Sustained effect of intensive treatment of type 1 diabetes mellitus on the development and progression of diabetic nephropathy in Epidemiology of Diabetes Interventions and Complications (EDIC) study. *JAMA* 2003, 290(16):2159-2167. PMC2622725.
  15. The DCCT/EDIC Research Group (Writing Committee: Nathan DM, Lachin JM, Cleary P, Orchard T, Brillon DJ, Backlund JY, O'Leary DH, Genuth SM). Intensive diabetes therapy and carotid intima-media thickness in type 1 diabetes mellitus. *N Engl J Med* 2003, 348(23):2294-2303. PMC2701300.
  14. Jaffa AA, Durazo-Arvizu R, Zheng D, Lackland DT, Srikanth S, Garvey WT, Schmaier AH, and the DCCT/EDIC Study Group. Plasma prekallikrein: A risk marker for hypertension and nephropathy in type-1 diabetes. *Diabetes* 2003, 52(5):1215-1221. PMID:12716755.
  13. Klein RL, Hunter SJ, Jenkins AJ, Zheng D, Semler AJ, Clore J, Garvey WT, and the DCCT/EDIC Study Group. Fibrinogen is a marker for nephropathy and peripheral vascular disease in type 1 diabetes: studies of plasma fibrinogen and fibrinogen gene polymorphism in the DCCT/EDIC cohort. *Diabetes Care* 2003, 26(5):1439-1448. PMID:12716802.
  12. Jenkins AJ, Garvey WT, and Klein RL, and the DCCT/EDIC Research Group. Lipoprotein abnormalities in type 1 diabetes. *Curr Opin Endocrinol Diabetes* 2003, 10(4):245-250.
  11. Jenkins AJ, Lyons TJ, Zheng D, Otvos J, Lackland DT, McGee D, Garvey WT, Klein R, and the DCCT/EDIC Research Group. Serum lipoproteins in the Diabetes Control and Complications Trial/Epidemiology of Diabetes Intervention and Complications cohort: Associations with gender and glycemia. *Diabetes Care* 2003, 26(3):810-818. PMID:12610042.
  10. Jenkins AJ, Lyons TJ, Zheng D, Otvos J, Lackland DT, McGee D, Garvey WT, Klein R, and the DCCT/EDIC Research Group. Lipoprotein in the DCCT/EDIC cohort: Associations with diabetic nephropathy. *Kidney Int* 2003, 64(3):817-828. PMID:12911531.
  9. Virella G, Thorpe SR, Alderson NL, Stephan EM, Atchley D, Wagner F, Lopes-Virella MF, and the DCCT/EDIC Research Group. Autoimmune response to advanced glycosylation end-products of human LDL. *J Lipid Res* 2003, 44(3):487-93. PMID:12562876.
  8. The DCCT/EDIC Research Group (Writing Committee: Lipps J, Lorenzi G, Genuth S, Nathan D, Davis M, Lachin J, Cleary P). The effect of intensive therapy on the microvascular complications of type 1 diabetes mellitus. *JAMA* 2002, 287(19):2563-2569. PMC2622728.
  7. Atchley DH, Lopes-Virella MF, Zheng D, Kenny D, Virella G. Oxidized LDL-Anti-Oxidized LDL immune complexes and diabetic nephropathy. *Diabetologia* 2002, 45(11):1562-1571. PMID:12436340.
  6. Virella G, Atchley D, Koskinen S, Zheng D, Lopes-Virella MF, and the DCCT/EDIC Research Group. Proatherogenic and proinflammatory properties of immune complexes prepared with purified human oxLDL antibodies and human oxLDL. *Clin Immunol* 2002, 105(1):81-92. PMID:12483997.
  5. White N, Cleary P, Dahms W, Goldstein D, Malone J, Tamborlane W, and the DCCT/EDIC Research Group. Beneficial effects of intensive therapy of diabetes during adolescence: outcomes after the conclusion of the Diabetes Control and Complications Trial (DCCT). *J Pediatr* 2001, 139(6):804-812. PMID:11743505.
  4. The DCCT/EDIC Research Group (Writing Committee: Lachin J, Genuth S, Nathan D, Davis M, Cleary P). Retinopathy and nephropathy in patients with type 1 diabetes four years after a trial of intensive therapy. *N Engl J Med* 2000, 342(6):381-389. PMC2630213.
  3. Barnie A, Cleary P, Genuth S, Martin C, Mayfield R, Tamborlane W, Wesche J, Shamoon H, and the EDIC Research Group. Epidemiology of Diabetes interventions and Complications (EDIC): Design and implementation of a long-term follow-up of the Diabetes Control and Complications Trial cohort. *Diabetes Care* 1999, 22(1):99-111. PMC2745938.

2. Zinman B, Cleary P, O'Leary D, Orchard T, and the EDIC Research Group. The effect of intensive diabetes treatment on carotid artery wall thickness in the Epidemiology of Diabetes Interventions and Complications (EDIC). *Diabetes* 1999, 48(2):383-390. PMC2622732.
1. Purnell JQ, Hokanson JE, Marcovina SM, Cleary PA, Steffes MW, Brunzell JD. Effect of excessive weight gain with intensive therapy of type 1 diabetes on lipid levels and blood pressure. *JAMA* 1998, 280(2):140-146. PMC2622729.

### **DIABETES CONTROL AND COMPLICATIONS TRIAL (DCCT)**

64. The DCCT Research Group. Influence of intensive diabetes treatment on body weight and composition of adults with type 1 diabetes in the Diabetes Control and Complications Trial. *Diabetes Care* 2001, 24(10):1711-1721. PMC2663516.
63. The DCCT Research Group. Effect of pregnancy on microvascular complications in the Diabetes Control and Complications Trial. *Diabetes Care* 2000, 23 (8):1084-1091. PMC2631985.
62. Sibley SD, Hokanson JE, Steffes MW, Purnell JQ, Marcovina SM, Cleary PA, Brunzell JD. Increased small dense LDL and intermediate-density lipoprotein with albuminuria in type 1 diabetes. *Diabetes Care* 1999, 22(7):1165-70. PMC2635089.
61. Monnier VM, Bautista O, Kenny D, Sell DR, Fogarty J, Dahms W, Cleary P, Lachin J, Genuth S. Skin collagen glycation, glycooxidation, and crosslinking are lower in subjects with long-term intensive versus conventional therapy of type I diabetes: Relevance of glycated collagen products versus HbA<sub>1c</sub> as markers of diabetic complications. *Diabetes* 1999, 48(4):870-880. PMC2862597.
60. The DCCT Research Group. The effect of intensive diabetes therapy on measures of autonomic nervous system function in the Diabetes Control and Complications Trial (DCCT). *Diabetologia* 1998, 41(4):416-423. PMC2635092.
59. The DCCT Research Group. Effect of intensive therapy on residual Beta-cell function in patients with type 1 diabetes in the Diabetes Control and Complications Trial: A randomized, controlled trial. *Ann Intern Med* 1998, 128(7):517-523. PMID:9518395.
58. The DCCT Research Group. Early worsening of diabetic retinopathy in the Diabetes Control and Complications Trial. *Arch Ophthalmol* 1998, 116(7):874-886. PMID:9682700.
57. Purnell JQ, Hokanson JE, Marcovina SM, Steffes MW, Cleary PA, Brunzell JD. Effect of excessive weight gain with intensive therapy of type 1 diabetes on lipid levels and blood pressure: Results from the DCCT. *JAMA* 1998, 280(2):140-146. PMC2622729.
56. The DCCT Research Group. Clustering of long-term complications in families with diabetes in the Diabetes Control and Complications Trial. *Diabetes* 1997, 46(11):1829-1839. PMID:9356033.
55. The DCCT Research Group. Hypoglycemia in the Diabetes Control and Complications Trial. *Diabetes* 1997, 46(2):271-286. PMID:9000705.
54. The DCCT Research Group. The absence of a glycemic threshold for the development of long-term complications: The perspective of the Diabetes Control and Complications Trial. *Diabetes* 1996, 45(10):1289-1298. PMID:8826962.
53. The DCCT Research Group. Lifetime benefits and costs of intensive therapy as practiced in the Diabetes Control and Complications Trial. *JAMA* 1996, 276(17):1409-1415. PMID:8892716.
52. The DCCT Research Group. Pregnancy outcomes in the Diabetes Control and Complications Trial. *Am J Obstet Gynecol* 1996, 174(4):1343-1353. PMID:8623868.
51. The DCCT Research Group. Influence of intensive diabetes treatment on quality-of-life outcomes in the Diabetes Control and Complications Trial. *Diabetes Care* 1996, 19(3):195-203. PMID:8742561.
50. The DCCT Research Group. Effects of intensive diabetes therapy on neuropsychological function in adults in the Diabetes Control and Complications Trial. *Ann Intern Med* 1996,

124(4):379-388. PMID:8554246.

49. Leiter LA, and the DCCT Research Group. Use of bioelectrical impedance analysis measurements in patients with diabetes. *Am J Clin Nutr* 1996, 64 (3 Suppl) 515S-518S. PMID:8780373.
48. Purnell J, Marcovina SM, Hokanson JE, Kennedy H, Cleary PA, Steffes MW, Brunzell JD. Levels of lipoprotein(a), apolipoprotein B, and lipoprotein cholesterol distribution in IDDM: Results from follow-up in the Diabetes Control and Complications Trial. *Diabetes* 1995, 44(10):1218-1226. PMC2866034.
47. The DCCT Research Group. Effect of intensive diabetes treatment on nerve conduction in the Diabetes Control and Complications Trial. *Ann Neurol* 1995, 38(6):869-880. PMID:8526459.
46. The DCCT Research Group. Adverse events and their association with treatment regimens in the Diabetes Control and Complications Trial. *Diabetes Care* 1995, 18(11):1415-1427. PMID:8722064.
45. The DCCT Research Group. Resource utilization and costs of care in the Diabetes Control and Complications Trial. *Diabetes Care* 1995, 18(11):1468-1478. PMID:8722072.
44. The DCCT Research Group. The relationship of glycemic exposure (HbA<sub>1c</sub>) to the risk of development and progression of retinopathy in the Diabetes Control and Complications Trial. *Diabetes* 1995, 44(8):968-983. PMID:7622004.
43. The DCCT Research Group. Effect of intensive diabetes management on macrovascular events and risk factors in the Diabetes Control and Complications Trial. *Am J Cardiol* 1995, 75(14):894-903. PMID:7732997.
42. The DCCT Research Group. Effect of intensive therapy on the development and progression of diabetic nephropathy in the Diabetes Control and Complications Trial. *Kid Int* 1995, 47(6):1703-1720. PMID:7643540.
41. The DCCT Research Group. The effect of intensive diabetes therapy on the development and progression of neuropathy. *Ann Intern Med* 1995, 122(8):561-568. PMID:7887548.
40. Klein R, Moss S, and the DCCT Research Group. A comparison of the study populations in the Diabetes Control and Complications Trial and the Wisconsin Epidemiologic Study of Diabetic Retinopathy. *Arch Intern Med* 1995, 155(7):745-754. PMID:7695463.
39. The DCCT Research Group. Progression of retinopathy with intensive versus conventional treatment in the Diabetes Control and Complications Trial. *Ophthalmology* 1995, 102(4):647-661. PMID:7724182.
38. The DCCT Research Group. The effect of intensive diabetes treatment on the progression of diabetic retinopathy in insulin-dependent diabetes mellitus: The Diabetes Control and Complication Trial. *Arch Ophthalmol* 1995, 113(1):36-51. PMID:7826293.
37. The DCCT Research Group. Implementation of treatment protocols in the Diabetes Control and Complications Trial. *Diabetes Care* 1995, 18(3):361-376. PMID:7555480.
36. Nathan DM. Inferences and implications: Do the DCCT results apply in NIDDM? *Diabetes Care* 1995; 18(2):251-257. PMID:7729307.
35. Nathan DM. Was it intensive therapy or glycemic control that worked in the DCCT? *Clinical Diabetes* 1995; 13:5-6.
34. The DCCT Research Group. Psychological aspects of the DCCT. In *The Technology of Diabetes Care: Converging Medical and Psychosocial Perspectives* 1994, 122-139.
33. Leiter LA, Lukaski HC, Kenny DJ, Barnie A, Camelon K, Ferguson RS, MacLean S, Simkins S, Zinman B, Cleary PA, and the DCCT Research Group. The use of Bioelectrical Impedance Analysis (BIA) to estimate body composition in the Diabetes Control and Complications Trial (DCCT). *Int J Obes Relat Metab Disord* 1994, 18(12):829-835. PMID:7894522.
32. Schmidt LE, Cox MS, Buzzard IM, Cleary PA, and the DCCT Research Group. Reproducibility of a comprehensive diet history in the Diabetes Control and Complications

- Trial. *J Am Diet Assoc* 1994, 94(12):1392-1397. PMID:7963189.
31. The DCCT Research Group. Effect of intensive diabetes treatment on the development and progression of long-term complications in adolescents with insulin-dependent diabetes mellitus: Diabetes Control and Complications Trial. *J Pediatr* 1994, 125(2):177-188. PMID:8040759.
  30. The DCCT Research Group. A screening algorithm to identify clinically significant changes in neuropsychological functions in the Diabetes Control and Complications Trial. *J Clin Exp Neuropsychol* 1994, 16:303-316. PMID:8021316.
  29. Delahanty LM, Balford BN. The Role of Diet Behaviors in Achieving Improved Glycemic Control in Intensively Treated Patients in the Diabetes Control and Complications Trial. *Diabetes Care*, 1993 16(11):1453-1458. PMID:8299434.
  28. Siebert C, Clark CM. Operational and policy considerations of data monitoring in clinical trials: the Diabetes Control and Complications Trial experience. *Control Clin Trials* 1993, 14(1):30-44. PMID:8440093.
  27. Ahern J, Grove N, Strand T, Wesche J, Seibert C, Brenneman AT, Tamborlane WV, and the DCCT Research Group. The impact of the trial coordinator in the Diabetes Control and Complications Trial. *Diabetes Educ* 1993, 19(6):509-512. PMID:8156864.
  26. Levey AS, Greene T, Schluchter MD, Cleary PA, Teschan PE, Lorenz RA, Molitch ME, Mitch WE, Siebert C, Hall PM, Steffes MW, for the Modification of Diet in Renal Disease Study Group and the Diabetes Control and Complications Trial Research Group. Glomerular filtration rate measurements in clinical trials. *J Am Soc Nephrol* 1993, 4(5):1159-1171. PMID:8305642.
  25. Anderson EJ, Richardson M, Castle G, Cercone S, Delahanty L, Lyon R, Mueller D, Snetselaar L, and the DCCT Research Group. Nutrition interventions for intensive therapy in the Diabetes Control and Complications Trial. *J Am Diet Assoc* 1993, 93(7):768-772. PMID:8320402.
  24. Delahanty L, Simkins SW, CamelonK, and the DCCT Research Group. Expanded role of the dietitian in the Diabetes Control and Complications Trial: Implications for clinical practice. *J Am Diet Assoc* 1993, 93(7):758-767. PMID:8320401.
  23. The DCCT Research Group. The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. *N Engl J Med* 1993, 329(14):977-986. PMID:8366922.
  22. The DCCT Research Group. Baseline analysis of renal function in the Diabetes Control and Complications Trial. *Kid Int* 1993, 43(3):668-674. PMID:8455366.
  21. The DCCT Research Group. Lipid and lipoprotein levels in patients with IDDM: Diabetes Control and Complications Trial Experience. *Diabetes Care* 1992, 15(7):886-894. PMID:1516509.
  20. Ryan CM, Adams KA, Heaton RK, Grant I, Jacobson AM, and the DCCT Research Group. Neurobehavioral assessment of medical patients in clinical trials: The DCCT Experience. In Mohr E and Brouwers P, editors, *Handbook of Clinical Trials; The Neurobehavioral Approach*. Amsterdam/Lisse: Swets and Zeitlinger 1991, 215-240.
  19. The DCCT Research Group. Epidemiology of severe hypoglycemia in the Diabetes Control and Complications Trial. *Am J Med* 1991, 90(4):450-459. PMID:2012085.
  18. The DCCT Research Group. The Diabetes Control and Complications Trial (DCCT). Update. *Diabetes Care* 1990, 13(4):427-433. PMID:2180661.
  17. The DCCT Research Group. The Diabetes Control and Complications Trial (DCCT): The trial coordinator perspective. *Diabetes Educ* 1989, 15(3):236-241. PMID:2653757.
  16. The DCCT Research Group. The DCCT: Will it answer the questions? In Larkin R, Zimmer P, Chisolm D, editors, *Diabetes 1988*. Amsterdam: Elsevier: 1989, 847-855.
  15. Siebert C, and the DCCT Research Group. The Diabetes Control and Complications Trial (DCCT): Results of the feasibility study and design of the full-scale clinical trial. In Laron Z, Kämp M, editors, *Pediatric and Adolescent Endocrinology*. Tel Aviv: Basel, Karger:

- 1989,18:15-21.
14. The DCCT Research Group. Implementation of a multicomponent process to obtain informed consent in the Diabetes Control and Complications Trial. *Control Clin Trials* 1989, 10(1):83-96. PMID:2467781.
  13. The DCCT Research Group. Update. *Diabetes Spectrum* 1988, 1:187-190.
  12. The DCCT Research Group. Reliability and validity of a diabetes quality-of-life measure for the Diabetes Control and Complications Trial (DCCT). *Diabetes Care* 1988, 11(9):725-732. PMID:3066604.
  11. The DCCT Research Group. Weight gain associated with intensive therapy in the Diabetes Control and Complications Trial. *Diabetes Care* 1988, 11(7):567-573. PMID:2904881.
  10. Schumer M, Burton G, Burton C, Crum D, Pfeifer MA, and the DCCT Study Group. Diabetic autonomic neuropathy-Part I. Autonomic nervous system data analysis by a computerized central unit in a multicenter trial. *Am J Med* 1988, 85(suppl 5A):137-143. PMID:3057891.
  9. Hanssen KF, the DCCT Research Group, Brunetti P. Is there a need for a continuation of the DCCT in 1988? *Diabetes Nutr Metab* 1988, 1:151-159.
  8. The DCCT Research Group. Factors in development of diabetic neuropathy: Baseline analysis of neuropathy in feasibility phase of the Diabetes Control and Complications Trial (DCCT). *Diabetes* 1988, 37(4):476-481. PMID:2897940.
  7. The DCCT Research Group. Are continuing studies of metabolic control and microvascular complications in insulin-dependent diabetes mellitus justified? The Diabetes Control and Complications Trial. *N Engl J Med* 1988, 318:246-250.
  6. The DCCT Research Group. Color photography vs. fluorescein angiography in the detection of diabetic retinopathy in the Diabetes Control and Complications Trial. *Arch Ophthalmol* 1987, 105(10):1344-1351. PMID:3662904.
  5. The DCCT Research Group. Diabetes Control and Complications Trial (DCCT): Results of feasibility study. *Diabetes Care*, 1987 10(1):1-19. PMID:2882967.
  4. The DCCT Research Group. Feasibility of centralized measurements of glycated hemoglobin in the Diabetes Control and Complications Trial: A multicenter study. *Clin Chem* 1987, 33(12):2267-2271. PMID:3319291.
  3. The DCCT Research Group. Effects of age, duration and treatment of insulin-dependent diabetes mellitus on residual Beta-cell function: Observations during eligibility testing for the Diabetes Control and Complications Trial (DCCT). *J Clin Endocrinol Metab* 1987, 65(1):30-36. PMID:2884229.
  2. The DCCT Research Group. Treatment regimen design in the Diabetes Control and Complications Trial (DCCT). *Transplantation Proceedings* 1986, 18:1678-1680.
  1. The DCCT Research Group. The Diabetes Control and Complications Trial (DCCT): Design and methodologic considerations for the feasibility phase. *Diabetes* 1986, 35(5):530-545. PMID:2869996.

#### **STATISTICAL METHODS – Developed for application to, and supported by, DCCT/EDIC**

27. Lachin JM. Power of the Mantel-Haenszel and other tests for discrete or grouped time-to-event data under a chained binomial model. *Stat Med* 2013, 32:220-229. PMC3634579.
26. Lachin JM. Power and sample size evaluation for the Cochran-Mantel-Haenszel mean score (Wilcoxon rank sum) test and the Cochran-Armitage test for trend. *Stat Med* 2011, 30(25):3057-3066. PMID:22006667.
25. Lachin JM. Sample size evaluation for a multiply matched case-control study using the score test from a conditional logistic (discrete Cox PH) regression model. *Stat Med* 2008, 27(14):2509-2523. PMC3626499.
24. Sparling YH, Younes N, Lachin JM, Bautista OM. Parametric survival models for interval-censored data with time-dependent covariates. *Biostatistics*, 2006, 7(4):599-614. PMID:16597670.
23. Lachin JM, Cleary PA, Crofford C, Genuth S, Nathan D, Clark C, Ferris F, Siebert C for the

- DCCT Research Group. Early termination of the diabetes control and complications trial. In *Data Monitoring in Clinical Trials: A Case Studies Approach*, DL DeMets, CD Furberg, LM Friedman (Eds). Springer, New York, New York, 2006, pp. 93-108.
22. Lachin JM. Maximum information designs. *Clin Trials* 2005, 2(5):453-464. PMID:16315649.
  21. Lachin JM, Greenhouse SW, Bautista OM. Group sequential large sample  $T^2$  –like  $X^2$  tests for multivariate observations. *Stat Med* 2003, 22(21):3357-3368. PMID:14566920.
  20. Lan KKG, Lachin JM, Bautista OM. Over-ruling a group sequential boundary – a stopping rule versus a guideline. *Stat Med* 2003, 22(21):3347-3355. PMID:14566919.
  19. Lachin JM. Worst-rank score analysis with informatively missing observations in clinical trials. *Control Clin Trials* 1999, 20(5):408-422. PMID:10503801.
  18. Lachin JM. Group sequential monitoring of distribution-free analyses of repeated measures. *Stat Med* 1997, 16(6):653-668. PMID:9131754.
  17. Lachin JM. Distribution-free marginal analysis of repeated measures. *Drug Information Journal* 1996, 30(4):1017-1028.
  16. Rosenberger WF, Lachin JM, Bain RP. Nonparametric test of stochastic ordering for multiple longitudinal measures. *J Biopharm Stat* 1995, 5(3):235-243. PMID:8580926.
  15. Lachin JM. Some large-sample distribution-free estimators and tests for multivariate partially incomplete data from two populations. *Stat Med* 1992, 11(9):1151-1170. PMID:1509217.
  14. Knoke JD. Nonparametric analysis of covariance for comparing change in randomized studies with baseline values subject to error. *Biometrics* 1991, 47(2):523-533. PMID:1912259.
  13. Wei LJ, Su JQ, Lachin JM. Interim analyses with repeated measurements in a sequential clinical trial. *Biometrika* 1990, 77(2):359-364.
  12. Lan KKG, Lachin JM. Implementation of group sequential logrank tests in a maximum duration trial. *Biometrics* 1990, 46(3):759-770. PMID:2242413.
  11. Lachin JM, Matts JP, Wei LJ. Randomization in clinical trials: Conclusions and recommendations. *Control Clinl Trials* 1988, 9(4):365-374. PMID:3203526.
  10. Wei LJ, Lachin JM. Properties of the urn randomization in clinical trials. *Control Clinl Trials* 1988, 9(4):345-364. PMID:3203525.
  9. Matts JP, Lachin JM. Properties of permuted-block randomization in clinical trials. *Control Clinl Trials* 1988, 9(4):327-344. PMID:3203524.
  8. Lachin JM. Properties of simple randomization in clinical trials. *Control Clinl Trials* 1988, 9(4):312-326. PMID:3203523.
  7. Lachin JM. Statistical properties of randomization in clinical trials. *Control Clinl Trials* 1988, 9(4):289-311. PMID:3060315.
  6. Lachin JM. Properties of randomization in clinical trials: Forward. *Control Clinl Trials* 1988, 9(4):287-288.
  5. Lachin JM, Wei LJ. Estimators and tests in the analysis of multiple nonindependent 2 x 2 tables with partially missing observations. *Biometrics* 1988, 44(2):513-528. PMID:3291958.
  4. Thall PF, Lachin JM. Analysis of recurrent events: Nonparametric methods for random-interval count data. *J Am Statist Assoc* 1988, 83(402):339-347.
  3. Lachin JM, Foulkes MA. Evaluation of sample size and power for analyses of survival with allowance for nonuniform patient entry, losses to follow-up, noncompliance, and stratification. *Biometrics* 1986, 42(3):507-519. PMID:3567285.
  2. Thall PF, Lachin JM. Assessment of stratum-covariate interactions in Cox's proportional hazards regression model. *Stat Med* 1986, 5:73-83. PMID:3515475.
  1. Wei LJ, Lachin JM. Two-sample asymptotically distribution-free tests for incomplete multivariate observations. *J Am Statist Assoc* 1984, 79(387):653-661.