

References

1. Zatejshchikov DA. *Farmateka – Farmateka* 2003;2:1–5.
2. Kovalenko VN, Mazurov VI, Sternin JuI, Talaeva TV. *Profilakticheskaja i klinicheskaja medicina – Preventive and Clinical Medicine* 2010;3–4(36–37):93–98.
3. Alexander CM, Landsman, PB, Teutsch, SM, Haffner, SM. NCEP-defined metabolic syndrome, diabetes, and prevalence of coronary heart disease among NHANES III participants age 50 years and older. *Diabetes* 2003;52(5):1210–1214.
4. Bastelica D, Morange P, Berthet B. Stromal cells Are the main plasminogen activator inhibitor-1 producing cells in human fat: evidence of differences between visceral and subcutaneous deposits. *Arterioscler. Thromb. Vasc. Biol* 2002;22:173–178.
5. Berger J, Moller DE. The mechanisms of action of PPARs. *Annu. Rev. Med* 2002;53:409–435.
6. Cameron AJ, Shaw JE, Zimmet PZ, Chitson P, Alberti KG. Comparison of WHO and NCEP metabolic syndrome definitions over 5 years in Mauritius. *Diabetologia* 2003;46(Suppl. 2):A3068.
7. Cefalu W.T. Insulin resistance and cardiometabolic risk // Atlas of cardiometabolic risk / Ed. W.T.Cefalua Ch. P. Cannon, informa Healthcare. N-Y, London, 2007.27–37.
8. Crandall DL, Quinet EM, Ayachi SEI, Hreha AL, Leik CE, Savio DA, Juhan-Vague I, Alessi M-Ch. Modulation of adipose tissue development by pharmacological inhibition of PAI-1. *Arterioscler. Thromb. Vasc. Biol* 2006;26:2209–2218.
9. Day C. Diagnostic definitions – metabolic syndrome. *Br.J.Diab. Vasc. Dis* 2005:115–118.
10. Despres J-P, Brewer HB. Metabolic syndrome: The dysmetabolic state of dysfunctional adipose tissue and insulin resisyance. *Eur. Heart J* 2008;10 (Suppl. B):B1-B3.
11. Fan JG, Zhu J, Li XJ, Chen L, Lu YS, Li L, Dai F, Li F, Chen SY. Fatti liver and the metabolic syndrome among Shanghai adults. *J. Gastroenterol. Hepatol* 2005;20(12):1825–1832.
12. Ferrannini E, Sironi AM, Iozzo P, Gastaldelli A. Intra-abdominal adiposity, abdominal obesity, and cardiometabolic risk. *Eur. Heart J* 2008;10(Suppl.B):4–10.
13. Ford ES. C-reactive protein concentration and cardiovascular disease risk factors in children: findings from The National Health and Nutrition Examination Survey 1999–2000. *Circulation* 2003;108:1053–1058.
14. Ford ES. Risks for all-cause mortality, cardiovascular disease, and diabetes associated with the metabolic syndrome: a summary of evidence. *Diabetes Care* 2005;28:1769–1778.
15. Franklin SS, Barboza M, Pio JR, Wong Nathan D. Blood pressure categories, hypertensive subtypes, and the metabolic syndrome. *J. Hypertens* 2006;24:2009–2016.
16. Gan SK, Kriketos AD, Poynten AM, Furler SM, Thompson CH, Kraegen EW, Campbell LV, Chisholm DJ. Insulin action, regional fat, and myocyte lipid; altered relationships with increased adiposity. *Obes. Res* 2003;11:1295–1305.

17. Girman CJ, Dekker JM, Rhodes T, Nijpels G, Stehouwer CD, Bouter LM, Heine RJ. An exploratory analysis of criteria for the metabolic syndrome and its prediction of long-term cardiovascular outcomes. The Hoorn Study. *American J. Epidemiology* 2005;162 (5):438–447.
18. Girman CJ, Rhodes T, Mercuri M, Pyörälä K, Kjekshus J, Pedersen TR, Beere PA, Gotto AM, Clearfield M. The metabolic syndrome and risk of major coronary event in Scandinavian Simvastatin Survival Study (4S) and the Air Force /Texas Coronary Prevention Study (AFCAPS/TexCaps). *Am.J. Cardiol* 2004;93:136–141.
19. Glund S, Deshmukh A, Long YC. Interleukin-6 directly increases glucose metabolism in resting human skeletal muscle. *Diabetes* 2007;56:1930–1637.
20. Golden SH, Folsom AR, Coresh J, Sharrett AR, Szklo M, Brancati F. Risk factor groupings related to insulin resistance and their synergistic effects on subclinical atherosclerosis: the risk atherosclerosis in communities study. *Diabetes* 2002;51:3069–3076.
21. Goodpaster BH, Thaete FL, Simoneau JA, Kelley DE. Subcutaneous abdominal Fat and thigh muscle composition predict insulin sensitivity independently of visceral fat. *Diabetes* 1997;46:1579–1585.
22. Grundy SM, Brewer HB, Cleeman J.I, Smith SC, Lenfant C. Definition of metabolic syndrome: Report of the National Heart, Lung, and Blood Institute. American Heart Association conference on scientific issues related to definition. *Circulation* 2004;109(3):433–438.
23. Hayashi T, Boyko EJ, McNeely MJ, Leonetti DL, Kahn SE, Fujimoto WY. Visceral adiposity, not abdominal subcutaneous fat area, is associated with an increase in future insulin resistance in Japanese Americans. *Diabetes* 2008;57:1269–1275.
24. Houstis N, Rosen ED, Lander ES. Reactive oxygen species have a casual role in multiple forms of insulin resistance. *Nature* 2006;440:944–948.
25. Ihara H, Urano T, Takada A, Loskutoff DJ. Induction of plasminogen activator inhibitor 1 gene expression on adypocytes by thiasolidinediones. *FASEB J* 2001;15:1233–1235.
26. Ingleson E, Sullivan LM, Murabito JM, Fox CS, Benjamin EJ, Polak JF, Meigs JB, Keyes MJ, O'Donnell ChJ, Wang TJ, D'Agostino RB, Wolf PhA Vasan RS. Prevalence and prognostic impact of subclinical cardiovascular disease in individuals with the metabolic syndrome and diabetes. *Diabetes* 2007;56:1718–1726.
27. Lakka HM, Laaksonen DE, Lakka TA, Niskanen LK, Kumpusalo E, Tuomilehto J, Salonen JT. The metabolic syndrome and total and cardiovascular disease mortality in middle-aged men. *JT. JAMA* 2002;288:2709–2716.
28. Lundbye JB, Thompson PD. Statin use in metabolic syndrome. *Cur. Atheroscler. Rep* 2005;7:17–21.
29. Malik S, Wong ND, Franklin SS, Kamath TV, L'Italien GJ, Pio JR, Williams GR. Impact of the metabolic syndrome on mortality from coronary heart disease, cardiovascular disease, and all causes in United States adults. *Circulation* 2004;110(10):1240–1245.
30. Matfin G. Challenges in developing therapies for the metabolic syndrome. *Br. J.Diabetes Vasc. Dis* 2007;7(4):152–156.

31. Matsushita K, Yatsuya H, Tamakoshi K, Wada K, Otsuka R, Takefuji S, Sugiura K, Kondo T, Murohara T, Toyoshima H. Comparison of circulating adiponectin and proinflammatory markers regarding their association with metabolic syndrome in Japanese men. *Arterioscler. Thromb. Vasc. Biol* 2006;26:871–878.
32. Meigs JB, D'Agostino RB Sr, Wilson PW, Cupples LA, Nathan DM, Singer DE. Risk variable clustering in the insulin resistance syndrome. The Framingham offspring study. *Diabetes* 1997;46:1594–1600.
33. Moller DE. Potential role of TNF- α in the pathogenesis of insulin resistance and type 2 diabetes. *Trends. Endocrinol. Metab* 2000;11:212–217.
34. Nisoli E, Falcone S, Tonello C, Cozzi V, Palomba L, Fiorani M, Pisconti A, Brunelli S, Cardile A, Francolini M, Cantoni O, Carruba MO, Moncada S, Clementi E. Mitochondrial biogenesis by NO yields functionally active mitochondria in mammals. *Proc. Natl. Acad. Sci. U.S.A* 2004;119:16507–16512.
35. Ouchi N, Kihara S, Arita Y, Nishida M, Matsuyama A, Okamoto Y, Ishigami M, Kuriyama H, Kishida K, Nishizawa H, Hotta K, Muraguchi M, Ohmoto Y, Yamashita S, Funahashi T, Matsuzawa Y. Adipocyte-derived plasma protein, adiponectin, suppresses lipid accumulation and class A scavenger receptor expression in human monocyte-derived macrophages. *Circulation* 2001;103:1057–1063.
36. Ouchi N, Kihara S, Funahashi T, Nakamura T, Nishida M, Kumada M, Okamoto Y, Ohashi K, Nagaretani H, Kishida K, Nishizawa H, Maeda N, Kobayashi H, Hiraoka H, Matsuzawa Y. Reciprocal association of C-reactive protein with adiponectin in blood stream and adipose tissue. *Circulation* 2003;107:671–674.
37. Panchal SK, Poudyal H, Brown L. Quercetin ameliorates cardiovascular, hepatic, and metabolic changes in diet-induced metabolic syndrome in rats. *J. Nutr* 2012;142(6):1026–1032.
38. Paré A, Dumont M, Lemieux I, Brochu M, Alméras N, Lemieux S, Prud'homme D, Després JP. Is the relationship between adipose tissue and waist girth altered by weight loss in obese men? *Obes. Res* 2001;9:526–534.
39. Pfützner A, Marx N, Lübken G, Langenfeld M, Walcher D, Konrad T, Forst T. Improvement of cardiovascular risk markers by pioglitazone is independent from glycaemic control: Results from the pioneer study. *J. Am. Coll. Cardiol* 2005;45:1925–1931.
40. Reaven GM. Banting lecture: Role of insulin resistance in human disease. *Diabetes* 1988;37:1595–1607.
41. Reaven GM. Insulin resistance, cardiovascular disease, and the metabolic syndrome. *Diabetes. Care* 2004;27:1011–1012.
42. Reaven GM. Insulin resistance/compensatory hyperinsulinemia, essential hypertension, and cardiovascular disease. *J. Clin. Endocrinol. Metabol* 2003;88(6):2399–2403.
43. Ridker PM, Cannon CP, Morrow D, Rifai N, Rose LM, McCabe CH, Pfeffer MA, Braunwald E. C-reactive protein levels and outcomes after statin therapy. *N. Engl. J. Med* 2005;352:20–28.

44. Roberts AW, Thomas A, Rees A, Evans N. Peroxisome proliferator - activated receptor-gamma agonists in atherosclerosis: current evidence and future directions. *Curr. Opin. Lipidol* 2003;14:567–573.
45. Sakaida I, Okita K. The role of oxidative stress in NASH and fatty liver model. *Hepatol.Res* 2005;33:128–131.
46. Sartipy P, Loskutoff DJ. Monocyte Chemoattractant protein 1 in obesity in insulin resistance. *Proc.Natl. Acad. Sci. U.S.A* 2003;100:7265–7270.
47. Schaefer EJ, McNamara JR, Asztalos BF, Taylor T, Daly JA, Gleason JL, Seman LJ, Ferrari A, Rubenstein JJ. Effects of atorvastatin versus other statins on fasting and postprandial C-reactive protein and lipoprotein-associated phospholipase A2 in patients with coronary heart disease versus control subjects. *Am. J. Cardiol* 2005;95:1025–1032.
48. Schneider CA. Improving macrovascular outcomes in type 2 diabetes: outcome studies in cardiovascular risk and metabolic control. *Curr. Med. Res. Opin* 2006;22(suppl.2):S15–S26.
49. Schupp M. Angiotensin type 1 receptor blockers induce peroxisome-proliferator-activated receptor-gamma activity. *Circulation* 2004;109:2054–2057.
50. Sharma AM, Staels B. Peroxisome proliferator-activated receptor γ and adipose tissue-understanding obesity related changes in regulation of lipid and glucose metabolism. *J. Clin. Endocrinol. Metabol* 2007;92(2):386–395.
51. Shea S, Aymong E, Zybert P, Shamon H, Tracy RP, Deckelbaum RJ, Basch CE. Obesity, fasting plasma insulin, and C-reactive protein levels in healthy children. *Obes.Res* 2003;11:95–103.
52. Shin MJ, Lee JH, Jang Y, Park E, Oh J, Chung JH, Chung N. Insulin resistance, adipokines, and oxidative stress in nondiabetic, hypercholesterolemic patients: leptin as an 8-epi-prostaglandin F₂alpha determinant. *Metabolism* 2006;55:918–922.
53. Sowers JR, Frolnich ED. Insulin and insulin resistance: impact on blood pressure and cardiovascular disease. *Med. Clin. North. Am* 2004;88:63–82.
54. Sutherland WH, Manning PJ, Walker RJ, de Jong SA, Ryalls AR, Berry EA. Vitamin E supplementation and plasma 8-isoprostane and adiponectin in overweight subjects. *Obesity* 2007;15:386–391.
55. Taittonen L, Uhari M, Nuutinen M, Turtinen J, Pokka T, Akerblom HK. Insulin and blood pressure among healthy children. *Am. J. Hypertens* 1996;9:193–199.
56. Tiikkainen M, Tamminen M, Hakkinen AM. Liver-fat accumulation and insulin resistance in obese women with previous gestational diabetes. *Obes.Res* 2002;10:859–867.
57. Tomlinson JW, Finney J, Hughes BA, Hughes SV, Stewart PM. Reduced glucocorticoid production rate, decreased 5 α -reductase activity, and adipose tissue insulin sensitization after weight loss. *Diabetes* 2008;57:1536–1543.
58. Tripathy D, Mohanty P, Dhindsa S, Syed T, Ghanim H, Aljada A, Dandona P. Elevation of free fatty acids induces inflammation and impairs vascular reactivity in healthy subjects. *Diabetes* 2003;52:2882–2887.

59. Tsuchida A, Yamauchi T, Takekawa S. Peroxisome proliferator-activated receptor (PPRA δ) activation increases adiponectin receptor and reduces obesity-related inflammation in adipose tissue. Comparison of activation of PPRA δ ,r, and their combination. *Diabetes* 2005;54:3358–3370.
60. Urakawa H, Katsuki A, Sumida Y, Gabazza EC, Murashima S, Morioka K, Maruyama N, Kitagawa N, Tanaka T, Hori Y, Nakatani K, Yano Y, Adachi Y. Oxidative stress is associated with adiposity and insulin resistance in men. *J. Clin. Endocrinol. Metab* 2003;88:4673–4676.
61. Vita JA, Keaney JF Jr, Larson MG, Keyes MJ, Massaro JM, Lipinska I, Lehman BT, Fan S, Osypiuk E, Wilson PW, Vasan RS, Mitchell GF, Benjamin EJ. Brachial artery vasodilator function and systemic inflammation in the Framingham Offspring Study. *Circulation* 2004;110:3604–3609.
62. Voros G, Maquoi E, Collen D, Lijnen HR. Differential expression of plasminogen activator inhibitor, tumor necrosis factor-alpha, TNF-alpha converting enzyme and ADAMTS family members in murine fat territories. *Biochim. Biophys. Acta* 2003;1625:36–42.
63. Vozarova B, Weyer C, Hanson K. Circulating interleukin-6 in relation to adiposity, insulin action, and insulin secretion. *Obese. Res* 2001;9:414–417.
64. Weisberg SP, McCann D, Desai M, Rosenbaum M, Leibel RL, Ferrante AW. Obesity is associated with macrophage accumulation in adipose tissue. *J. Clin. Invest* 2003;112:1796–1808.
65. Williams PT, Hoffman K, La I. Weight-related increases in hypertension? Hypercholesterolemia, and diabetes risk in normal weight male and female runners. *Arterioscler. Thromb. Vasc. Biol* 2007;27:1811–1820.
66. Xu H, Barnes GT, Yang Q, Tan G, Yang D, Chou CJ, Sole J, Nichols A, Ross JS, Tartaglia LA, Chen H. Chronic inflammation in fat plays a crucial role in the development of obesity related insulin resistance. *J. Clin. Invest* 2003;112:1821–1830.
67. Xu H, Uysal KT, Becherer JD, Arner P, Hotamisligil GS. Altered tumor necrosis factor-alpha (TNF- alpha) processing in adipocytes and increased expression of transmembrane TNF-alpha in obesity *Diabetes* 2002;51:1876–1883.
68. Ye X, Yu Z, Li H, Franco OH, Liu Y, Lin X. Distribution Of C-reactive protein in its association with metabolic syndrome in middle-aged and older Chinese people. *J.Am. Coll. Cardiol* 2007;49:1798–1805.
69. Yu R, Kim C-S, Kwon B-S, Kawada T. Mesenteric adipose tissue-derived monocyte chemoattractant protein-1 plays a crucial role in adipose tissue macrophage migration and activation in obese mice. *Circ. Res* 2006;14:1353–1362.