Appendices

LIST OF PUBLICATIONS

Publications based on the studies described in this thesis

* Denotes equal contribution

** Denotes equal suprevision

Chapter 2.1.1

Trajanoska K, Schoufour JD, de Jonge EAL, Kieboom BCT, Mulder M, Stricker BH, Voortman T, Uitterlinden AG, Oei EHG, Ikram MA, Zillikens MC, Rivadeneira F, Oei L. Fracture incidence and secular trends between 1989 and 2013 in a population based cohort: The Rotterdam Study. **Bone.** 2018 Sep; 114:116-124. doi: 10.1016/j.bone.2018.06.004.

Chapter 2.1.2

Trajanoska K, Medina-Gomez C, Zillikens MC, Uitterlinden AG, Rivadeneira F. The Association between Osteocalcin, Adiposity and Bone health: Results from the Rotterdam Study (**in preparation**)

Chapter 2.1.3

Muka T, **Trajanoska K,** Kiefte-de Jong JC, Oei L, Uitterlinden AG, Hofman A, Dehghan A, Zillikens MC, Franco OH, Rivadeneira F. The Association between Metabolic Syndrome, Bone Mineral Density, Hip Bone Geometry and Fracture Risk: The Rotterdam Study. **PLoS One**. 2015 Jun 12;10(6):e0129116. doi: 10.1371/journal.pone.0129116. eCollection 2015.

Chapter 2.2.1

Trajanoska K, Rivadeneira F. The genetic architecture of osteoporosis and fracture risk. **Bone**. 2019 Sep; 126:2-10. doi: 10.1016/j.bone.2019.04.005. Review.

Chapter 2.1.2

Trajanoska K*, Teumer A*, Karasik D, Uitterlinden AG , Rivadeneira F,. Kiel DP, Hsu YH on behalf of CHARGE and GEFOS consortia. Genome-wide association meta-analysis identifies six loci for osteocalcin levels (**in preparation**)

Chapter 2.1.3

Medina-Gomez C*, Kemp JP*, **Trajanoska K**, Luan J, Chesi A, Ahluwalia TS, Mook-Kanamori DO, Ham A, Hartwig FP, Evans DS, Joro R, Nedeljkovic I, Zheng HF, Zhu K, Atalay M, Liu CT, Nethander M, Broer L, Porleifsson G, Mullin BH, Handelman SK, Nalls MA, Jessen LE, Heppe DHM, Richards JB, Wang C, Chawes B, Schraut KE, Amin N, Wareham N, Karasik D, Van der Velde N, Ikram MA, Zemel BS, Zhou Y, Carlsson CJ, Liu Y, McGuigan FE,

Boer CG, Bønnelykke K, Ralston SH, Robbins JA, Walsh JP, Zillikens MC, Langenberg C, Li-Gao R, Williams FMK, Harris TB, Akesson K, Jackson RD, Sigurdsson G, den Heijer M, van der Eerden BCJ, van de Peppel J, Spector TD, Pennell C, Horta BL, Felix JF, Zhao JH, Wilson SG, de Mutsert R, Bisgaard H, Styrkársdóttir U, Jaddoe VW, Orwoll E, Lakka TA, Scott R, Grant SFA, Lorentzon M, van Duijn CM, Wilson JF, Stefansson K, Psaty BM, Kiel DP, Ohlsson C, Ntzani E, van Wijnen AJ, Forgetta V, Ghanbari M, Logan JG, Williams GR, Bassett JHD, Croucher PI, Evangelou E, Uitterlinden AG, Ackert-Bicknell CL, Tobias JH, Evans DM, Rivadeneira F. Life-Course Genome-wide Association Study Meta-analysis of Total Body BMD and Assessment of Age-Specific Effects. **Am J Hum Genet.** 2018 Jan 4;102(1):88-102. doi: 10.1016/j.ajhg.2017.12.005.

Chapter 2.1.4

Trajanoska K*, Morris JA*, Oei L*, Zheng HF*, Evans DM**, Kiel DP**, Ohlsson C**, Richards JB**, Rivadeneira F**; GEFOS/GENOMOS consortium and the 23andMe research team. Assessment of the genetic and clinical determinants of fracture risk: genome wide association and mendelian randomisation study. **BMJ.** 2018 Aug 29;362:k3225. doi: 10.1136/bmj.k3225.

Chapter 2.1.5

Trajanoska K, Rivadeneira F. Using Mendelian Randomization to Decipher Mechanisms of Bone Disease. **Curr Osteoporos Rep**. 2018 Oct;16(5):531-540. doi: 10.1007/s11914-018-0467-3. Review.

Chapter 3.1

Witlox G, Voortman T, Rivadeneira F, **Trajanoska K.** Association between muscle force and power with different pQCT and DXA-derived parameters in middle-aged adults (**in preparation**)

Chapter 3.2

Trajanoska K, Schoufour JD, Darweesh SK, Benz E, Medina-Gomez C, Alferink LJ, Lahousse L, Brusselle G, Stricker B, Darwish Murad S, Zillikens MC, Uitterlinden AG, Ikram MA, Franco OH, Rivadeneira F. Sarcopenia and Its Clinical Correlates in the General Population: The Rotterdam Study. **J Bone Miner Res**. 2018 Jul;33(7):1209-1218. doi: 10.1002/jbmr.3416. Epub 2018 Apr 17.

Chapter 3.3

Benz E*,**Trajanoska K***, Lahousse L, Schoufour JD, Terzikhan N, De Roos E, de Jonge GB, Williams R, Franco OH, Brusselle G, Rivadeneira F. Sarcopenia in COPD: a systematic

review and meta-analysis **Eur Respir Rev.** 2019 Nov 13;28(154). pii: 190049. doi: 10.1183/16000617.0049-2019. Print 2019 Dec 31. Review.

Chapter 3.4

Alferink LJM,**Trajanoska K**, Erler NS, Schoufour JD, de Knegt RJ, Ikram MA, Janssen HLA, Franco OH, Metselaar HJ, Rivadeneira F, Darwish Murad S. J Nonalcoholic Fatty Liver Disease in The Rotterdam Study: About Muscle Mass, Sarcopenia, Fat Mass, and Fat Distribution. **J Bone Miner Res**. 2019 Jul;34(7):1254-1263. doi: 10.1002/jbmr.3713. Epub 2019 May 10.

Chapter 4.1

Trajanoska K, Rivadeneira F, Kiel DP, Karasik D.Genetics of Bone and Muscle Interactions in Humans. **Curr Osteoporos Rep**. 2019 Apr;17(2):86-95. doi: 10.1007/s11914-019-00505-1. Review.

Chapter 4.2

Trajanoska K, Dimou NL, Karasik D, Rivadeneira F on behalf of GEFOS consortium Leveraging data from bivariate genome-wide association meta-analysis to unravel novel pleitropic mechanisms of bone-muscle crosstalk (**in preparation**)

Chapter 4.3

Trajanoska K, Lotta SJ, Medina-Gomez C, Hsu YH, Zhou S, van Schoor NM, de Groot C.P.G.M. L, Karasik D, Richards JB, DouglasKP, Uitterlinden AG, Perry JRB, van der Velde N, Day FR **, Rivadeneira F**. Genetic basis of falling risk susceptibility in the UK Biobank Study. Communications Biology (**in press**)

Chapter 4.4

Hackinger S, **Trajanoska K**, Styrkarsdottir U, Zengini E, Steinberg J, Ritchie GRS, Hatzikotoulas K, Gilly A, Evangelou E, Kemp JP; arcOGEN Consortium, GEFOS Consortium, Evans D, Ingvarsson T, Jonsson H, Thorsteinsdottir U, Stefansson K, McCaskie AW, Brooks RA, Wilkinson JM, Rivadeneira F, Zeggini E. Evaluation of shared genetic aetiology between osteoarthritis and bone mineral density identifies SMAD3 as a novel osteoarthritis risk locus. **Hum Mol Genet**. 2017 Oct 1;26(19):3850-3858. doi: 10.1093/hmg/ddx285

Other publications

1. Waqas K, Chen J, Koromani F, **Trajanoska K**, van der Eerden BC, Uitterlinden AG, Rivadeneira F, Zillikens MC. "*Skin Autofluorescence, a Noninvasive Biomarker for Advanced Glycation End-Products, Is Associated with Prevalent Vertebral and Major Osteoporotic Fractures: The Rotterdam Study*" **J Bone Miner Res.** 2020 May 28. doi: 10.1002/jbmr.4096. Online ahead of print.
2. Magnus MC, Guyatt AL, Lawn RB, Wyss AB, **Trajanoska K,** Küpers LK, Rivadeneira F, Tobin MD, London SJ, Lawlor DA, Millard LAC, Fraser A. "*Identifying potential causal effects of age at menarche: a Mendelian randomization phenome-wide association study*". **BMC Med**. 2020 Mar 23;18(1):71. doi: 10.1186/s12916-020-01515-y.
3. Oliai Araghi S, Kiefte-de Jong JC, **Trajanoska K**, Koromani F, Rivadeneira F, Zillikens MC, van Schoor NM, de Groot LCPGM, Ikram MA, Uitterlinden AG, Stricker BH, van der Velde N. "*Do Vitamin D Level and Dietary Calcium Intake Modify the Association Between Loop Diuretics and Bone Health?*" **Calcif Tissue Int**. 2020 Feb;106(2):104-114. doi: 10.1007/s00223-019-00621-1.
4. Koromani F, Oei L, Shevroja E, **Trajanoska K**, Schoufour J, Muka T, Franco OH, Ikram MA, Zillikens MC, Uitterlinden AG, Krestin GP, Anastassiades T, Josse R, Kaiser SM, Goltzman D, Lentle BC, Prior JC, Leslie WD, McCloskey E, Lamy O, Hans D, Oei EH, Rivadeneira F. "*Vertebral Fractures in Individuals With Type 2 Diabetes: More Than Skeletal Complications Alone.*" **Diabetes Care**. 2020 Jan;43(1):137-144. doi: 10.2337/dc19-0925.
5. Cerani A, Zhou S, Forgetta V, Morris JA, **Trajanoska K**, Rivadeneira F, Larsson SC, Michaëlsson K, Richards JB. Genetic predisposition to increased serum calcium, bone mineral density, and fracture risk in individuals with normal calcium levels: mendelian randomisation study.**BMJ**. 2019 Aug 1;366:l4410. doi: 10.1136/bmj.l4410.
6. Hsu YH, Estrada K, Evangelou E, Ackert-Bicknell C, Akesson K, Beck T, Brown SJ, Capellini T, Carbone L, Cauley J, Cheung CL, Cummings SR, Czerwinski S, Demissie S, Econs M, Evans D, Farber C, Gautvik K, Harris T, Kammerer C, Kemp J, Koller DL, Kung A, Lawlor D, Lee M, Lorentzon M, McGuigan F, Medina-Gomez C, Mitchell B, Newman A, Nielson C, Ohlsson C, Peacock M, Reppe S, Richards JB, Robbins J, Sigurdsson G, Spector TD, Stefansson K, Streeten E, Styrkarsdottir U, Tobias J, **Trajanoska K**, Uitterlinden A, Vandenput L, Wilson SG, Yerges-Armstrong L, Young M, Zillikens MC, Rivadeneira F, Kiel DP, Karasik D. "*Meta-Analysis of Genomewide Association Studies Reveals Genetic Variants for Hip Bone Geometry.*" **J Bone Miner Res**. 2019 Jul;34(7):1284-1296. doi: 10.1002/jbmr.3698.
7. Koromani F, **Trajanoska K**, Rivadeneira F, Oei L. "*Recent Advances in the Genetics of Fractures in Osteoporosis.*" **Front Endocrinol** (Lausanne). 2019 Jun 4;10:337. doi: 10.3389/fendo.2019.00337. eCollection 2019. Review.
8. Styrkarsdottir U, Stefansson OA, Gunnarsdottir K, Thorleifsson G, Lund SH, Stefansdottir L, Juliusson K, Agustsdottir AB, Zink F, Halldorsson GH, Ivarsdottir EV, Benonisdottir S, Jonsson H, Gylfason A, Norland K,**Trajanoska K**, Boer CG, Southam L, Leung JCS, Tang NLS, Kwok TCY, Lee JSW, Ho SC, Byrjalsen I, Center JR, Lee SH, Koh JM, Lohmander LS, Ho-Pham LT, Nguyen TV, Eisman JA, Woo J, Leung PC, Loughlin J, Zeggini E, Christiansen C, Rivadeneira F, van Meurs J, Uitterlinden AG, Mogensen B, Jonsson H, Ingvarsson T, Sigurdsson G, Benediktsson R, Sulem P, Jonsdottir I, Masson G, Holm H, Norddahl GL, Thorsteinsdottir U, Gudbjartsson DF, Stefansson K. "*GWAS of bone size yields twelve loci that also affect height,*

BMD, osteoarthritis or fractures." **Nat Commun**. 2019 May 3;10(1):2054. doi: 10.1038/s41467-019-09860-0. Erratum in:Nat Commun. 2019 May 24;10(1):2358.

9. Grgic O, Rivadeneira F, Shevroja E, **Trajanoska K**, Jaddoe VWV, Uitterlinden AG, Beck TJ, Wolvius EB, Medina-Gomez C. "*Femoral stress is prominently associated with fracture risk in children: The Generation R Study.*" **Bone**. 2019 May;122:150-155. doi: 10.1016/j.bone.2019.02.018.
10. Grgic O, Chung K, Shevroja E, **Trajanoska K**, Uitterlinden AG, Wolvius EB, Rivadeneira F, Medina-Gomez C. "*Fractures in school age children in relation to sex and ethnic background: The Generation R Study."* **Bone**. 2019 Apr;121:227-231. doi: 10.1016/j.bone.2019.01.019.
11. Schoufour JD, Franco OH, Kiefte-de Jong JC, **Trajanoska K**, Stricker B, Brusselle G, Rivadeneira F, Lahousse L, Voortman T. The association between dietary protein intake, energy intake and physical frailty: results from the Rotterdam Study. **Br J Nutr**. 2019 Feb;121(4):393-401. doi: 10.1017/S0007114518003367.
12. Morris JA, Kemp JP, Youlten SE, Laurent L, Logan JG, Chai RC, Vulpescu NA, Forgetta V, Kleinman A, Mohanty ST, Sergio CM, Quinn J, Nguyen-Yamamoto L, Luco AL, Vijay J, Simon MM, Pramatarova A, Medina-Gomez C, **Trajanoska K**, Ghirardello EJ, Butterfield NC, Curry KF, Leitch VD, Sparkes PC, Adoum AT, Mannan NS, Komla-Ebri DSK, Pollard AS, Dewhurst HF, Hassall TAD, Beltejar MG; 23andMe Research Team, Adams DJ, Vaillancourt SM, Kaptoge S, Baldock P, Cooper C, Reeve J, Ntzani EE, Evangelou E, Ohlsson C, Karasik D, Rivadeneira F, Kiel DP, Tobias JH, Gregson CL, Harvey NC, Grundberg E, Goltzman D, Adams DJ, Lelliott CJ, Hinds DA, Ackert-Bicknell CL, Hsu YH, Maurano MT, Croucher PI, Williams GR, Bassett JHD, Evans DM, Richards JB. "*An atlas of genetic influences on osteoporosis in humans and mice."* **Nat Genet.** 2019 Feb;51(2):258-266. doi: 10.1038/s41588-018-0302-x. Epub 2018 Dec 31. Erratum in:Nat Genet. 2019 May;51(5):920.
13. Rivadeneira F, **Trajanoska K**, Morris J, Richards JB. "*Authors' reply to Sugiyama."* **BMJ**. 2019 Jan 14;364:l115. doi: 10.1136/bmj.l115.
14. Veldscholte K*, Barjaktarovic M*, **Trajanoska K**, Jaddoe VWV, Visser TJ, de Rijke YB, Peeters RP, Rivadeneira F, Korevaar TIM. "*The Association of Thyroid Function With Bone Density During Childhood."* **J Clin Endocrinol Metab**. 2018 Nov 1;103(11):4125-4134. doi: 10.1210/jc.2018-00294.
15. Warrington NM, Shevroja E, Hemani G, Hysi PG, Jiang Y, Auton A, Boer CG, Mangino M, Wang CA, Kemp JP, McMahon G, Medina-Gomez C, Hickey M, **Trajanoska K**, Wolke D, Ikram MA; 23andMe Research Team, Montgomery GW, Felix JF, Wright MJ, Mackey DA, Jaddoe VW, Martin NG, Tung JY, Davey Smith G, Pennell CE, Spector TD, van Meurs J, Rivadeneira F, Medland SE, Evans DM. "*Genome-wide association study identifies nine novel loci for 2D:4D finger ratio, a putative retrospective biomarker of testosterone exposure in utero."* **Hum Mol Genet**. 2018 Jun 1;27(11):2025-2038. doi: 10.1093/hmg/ddy121.
16. Kemp JP*, Morris JA*, Medina-Gomez C, Forgetta V, Warrington NM, Youlten SE, Zheng J, Gregson CL, Grundberg E, **Trajanoska K**, Logan JG, Pollard AS, Sparkes PC, Ghirardello EJ, Allen R, Leitch VD, Butterfield NC, Komla-Ebri D, Adoum AT, Curry KF, White JK, Kussy F, Greenlaw KM, Xu C, Harvey NC, Cooper C, Adams DJ, Greenwood CMT, Maurano MT, Kaptoge S, Rivadeneira F, Tobias JH, Croucher PI, Ackert-Bicknell CL, Bassett JHD, Williams GR, Richards JB, Evans DM. "*Identification of 153 new loci associated with heel bone mineral density and functional involvement of GPC6 in osteoporosis."* **Nat Genet**. 2017 Oct;49(10):1468-1475. doi: 10.1038/ng.3949.

17. Morris JA*, Tsai PC*, Joehanes R*, Zheng J*, **Trajanoska K*,** Soerensen M*, Forgetta V, Castillo-Fernandez JE, Frost M, Spector TD, Christensen K, Christiansen L, Rivadeneira F, Tobias JH, Evans DM, Kiel DP, Hsu YH, Richards JB, Bell JT. "*Epigenome-wide Association of DNA Methylation in Whole Blood With Bone Mineral Density.*" **J Bone Miner Res**. 2017 Aug;32(8):1644-1650. doi: 10.1002/jbmr.3148.
18. Willems SM*, Wright DJ*, Day FR, **Trajanoska K**, Joshi PK, Morris JA, Matteini AM, Garton FC, Grarup N, Oskolkov N, Thalamuthu A, Mangino M, Liu J, Demirkan A, Lek M, Xu L, Wang G, Oldmeadow C, Gaulton KJ, Lotta LA, Miyamoto-Mikami E, Rivas MA, White T, Loh PR, Aadahl M, Amin N, Attia JR, Austin K, Benyamin B, Brage S, Cheng YC, Cięszczyk P, Derave W, Eriksson KF, Eynon N, Linneberg A, Lucia A, Massidda M, Mitchell BD, Miyachi M, Murakami H, Padmanabhan S, Pandey A, Papadimitriou I, Rajpal DK, Sale C, Schnurr TM, Sessa F, Shrine N, Tobin MD, Varley I, Wain LV, Wray NR, Lindgren CM, MacArthur DG, Waterworth DM, McCarthy MI, Pedersen O, Khaw KT, Kiel DP; GEFOS Any-Type of Fracture Consortium, Pitsiladis Y, Fuku N, Franks PW, North KN, van Duijn CM, Mather KA, Hansen T, Hansson O, Spector T, Murabito JM, Richards JB, Rivadeneira F, Langenberg C, Perry JRB, Wareham NJ, Scott RA. "*Large-scale GWAS identifies multiple loci for hand grip strength providing biological insights into muscular fitness.*" **Nat Commun**. 2017 Jul 12;8:16015. doi: 10.1038/ncomms16015.
19. Tachmazidou I, Süveges D, Min JL, Ritchie GRS, Steinberg J, Walter K, Iotchkova V, Schwartzentruber J, Huang J, Memari Y, McCarthy S, Crawford AA, Bombieri C, Cocca M, Farmaki AE, Gaunt TR, Jousilahti P, Kooijman MN, Lehne B, Malerba G, Männistö S, Matchan A, Medina-Gomez C, Metrustry SJ, Nag A, Ntalla I, Paternoster L, Rayner NW, Sala C, Scott WR, Shihab HA, Southam L, St Pourcain B, Traglia M, **Trajanoska K**, Zaza G, Zhang W, Artigas MS, Bansal N, Benn M, Chen Z, Danecek P, Lin WY, Locke A, Luan J, Manning AK, Mulas A, Sidore C, Tybjaerg-Hansen A, Varbo A, Zoledziewska M, Finan C, Hatzikotoulas K, Hendricks AE, Kemp JP, Moayyeri A, Panoutsopoulou K, Szpak M, Wilson SG, Boehnke M, Cucca F, Di Angelantonio E, Langenberg C, Lindgren C, McCarthy MI, Morris AP, Nordestgaard BG, Scott RA, Tobin MD, Wareham NJ; SpiroMeta Consortium; GoT2D Consortium, Burton P, Chambers JC, Smith GD, Dedoussis G, Felix JF, Franco OH, Gambaro G, Gasparini P, Hammond CJ, Hofman A, Jaddoe VWV, Kleber M, Kooner JS, Perola M, Relton C, Ring SM, Rivadeneira F, Salomaa V, Spector TD, Stegle O, Toniolo D, Uitterlinden AG; arcOGEN Consortium; Understanding Society Scientific Group; UK10K Consortium, Barroso I, Greenwood CMT, Perry JRB, Walker BR, Butterworth AS, Xue Y, Durbin R, Small KS, Soranzo N, Timpson NJ, Zeggini E. "*Whole-Genome Sequencing Coupled to Imputation Discovers Genetic Signals for Anthropometric Traits.*" **Am J Hum Genet**. 2017 Jun 1;100(6):865-884. doi: 10.1016/j.ajhg.2017.04.014.
20. Medina-Gomez C, Heppe DHM, Yin JL, **Trajanoska K**, Uitterlinden AG, Beck TJ, Jaddoe VWV, Rivadeneira F. "*Bone Mass and Strength in School-Age Children Exhibit Sexual Dimorphism Related to Differences in Lean Mass: The Generation R Study.*" **J Bone Miner Res**. 2016 May;31(5):1099-106. doi: 10.1002/jbmr.2755.
21. Zheng HF, Forgetta V, Hsu YH, Estrada K, Rosello-Diez A, Leo PJ, Dahia CL, Park-Min KH, Tobias JH, Kooperberg C, Kleinman A, Styrkarsdottir U, Liu CT, Uggla C, Evans DS, Nielson CM, Walter K, Pettersson-Kymmer U, McCarthy S, Eriksson J, Kwan T, Jhamai M, **Trajanoska K**, Memari Y, Min J, Huang J, Danecek P, Wilmot B, Li R, Chou WC, Mokry LE, Moayyeri A, Claussnitzer M, Cheng CH, Cheung W, Medina-Gómez C, Ge B, Chen SH, Choi K, Oei L, Fraser J, Kraaij R, Hibbs MA, Gregson CL, Paquette D, Hofman A, Wibom C, Tranah GJ, Marshall M, Gardiner BB, Cremin K, Auer P, Hsu L, Ring S, Tung JY, Thorleifsson G, Enneman AW,

van Schoor NM, de Groot LC, van der Velde N, Melin B, Kemp JP, Christiansen C, Sayers A, Zhou Y, Calderari S, van Rooij J, Carlson C, Peters U, Berlivet S, Dostie J, Uitterlinden AG, Williams SR, Farber C, Grinberg D, LaCroix AZ, Haessler J, Chasman DI, Giulianini F, Rose LM, Ridker PM, Eisman JA, Nguyen TV, Center JR, Nogues X, Garcia-Giralt N, Launer LL, Gudnason V, Mellström D, Vandenput L, Amin N, van Duijn CM, Karlsson MK, Ljunggren Ö, Svensson O, Hallmans G, Rousseau F, Giroux S, Bussière J, Arp PP, Koromani F, Prince RL, Lewis JR, Langdahl BL, Hermann AP, Jensen JE, Kaptoge S, Khaw KT, Reeve J, Formosa MM, Xuereb-Anastasi A, Åkesson K, McGuigan FE, Garg G, Olmos JM, Zarrabeitia MT, Riancho JA, Ralston SH, Alonso N, Jiang X, Goltzman D, Pastinen T, Grundberg E, Gauguier D, Orwoll ES, Karasik D, Davey-Smith G; AOGC Consortium, Smith AV, Siggeirsdottir K, Harris TB, Zillikens MC, van Meurs JB, Thorsteinsdottir U, Maurano MT, Timpson NJ, Soranzo N, Durbin R, Wilson SG, Ntzani EE, Brown MA, Stefansson K, Hinds DA, Spector T, Cupples LA, Ohlsson C, Greenwood CM; UK10K Consortium, Jackson RD, Rowe DW, Loomis CA, Evans DM, Ackert-Bicknell CL, Joyner AL, Duncan EL, Kiel DP, Rivadeneira F, Richards JB. "*Whole-genome sequencing identifies EN1 as a determinant of bone density and fracture.*" **Nature**. 2015 Oct 1;526(7571):112-7. doi: 10.1038/nature14878.

22. Garan Jones*, **Katerina Trajanoska*,** Adam J Santanasto*, Najada Stringa*, Chia-Ling Kuo*, Janice L Atkins*, Joshua R Lewis, ThuyVy Duong, Shengjun Hong, Mary L Biggs, Jian'an Luan, Chloe Sarnowski, Kathryn L Lunetta, Toshiko Tanaka, Mary K Wojczynski, Ryan Cvejkus, Maria Nethander, Sahar Ghasemi, Jingyun Yang, M. Carola Zillikens, Stefan Walter, Kamil Sicinski, Erika Kague, Cheryl L AckertBicknell, Dan E Arking, B Gwen Windham, Eric Boerwinkle, Megan L Grove, Misa Graff, Dominik Spira, Ilja Demuth, Nathalie van der Velde, Lisette C P G M de Groot, Bruce M Psaty, Michelle C Odden, Alison E Fohner, Claudia Langenberg, Nicholas J Wareham, Stefania Bandinelli, Natasja M van Schoor, Martijn Huisman, Qihua Tan, Joseph Zmuda, Dan Mellström, Magnus Karlsson, David A Bennett, Aron S Buchman, Philip L De Jager, Andre G Uitterlinden, Uwe Völker, Thomas Kocher, Alexander Teumer, Leocadio Rodriguéz-Mañas, Francisco J García García, José A Carnicero, Pamela Herd, Lars Bertram, Claes Ohlsson, Joanne M Murabito*, George A Kuchel*, Luigi Ferrucci*, David Melzer*, David Karasik*,Fernando Rivadeneira*, Douglas P Kiel*, Luke C Pilling* "*Genome-wide meta-analysis of muscle weakness identifies 15 susceptibility loci in older men and women*" (**submitted**)
23. van der Schaft N, **Trajanoska K**, Rivadeneira F, Ikram M A, Schoufour D J, Voortman T "*Total Dietary Antioxidant Capacity and Longitudinal Trajectories of Body Composition*" (**submitted**)
24. Bergink A, **Trajanoska K**, Uitterlinden A, van Meurs J. "*Mendelian Randomization study on vitamin D lelves and osteoarthritis risk: a concise report*" (**submitted**)
25. Benz E , **Trajanoska K**, Schoufour D J, Lahousse L, de Roos W E, Terzikhan N, Medina-Gomez C, Verhamme K, Williams R, Stricker H B, Franco H O, Ikram M A, Rivadeneira F, Brusselle G "*Sarcopenia in elderly population with chronic airway diseases: the Rotterdam study*" (**submitted**)

PHD PORTFOLIO SUMMARY

Name PhD student:	Katerina Trajanoska
PhD period:	August 2014 – August 2019
Erasmus MC Department:	Internal Medicine & Epidemiology
Promotor(s):	Prof. dr. A.G Uitterlinden and Prof. dr. F. Rivadeneira
Supervisor:	Dr. C. Medina-Gomez
Research School:	NIHES: Erasmus University

GENERAL RESEARCH SKILLS

	Year	ECTS
Master of science in Health Sciences (NIHES)	**2014-2015**	**70**
Specialization: Genetic Epidemiology		
o Principles of Research in Medicine		0.7
o Genome Wide Association Analysis		1.4
o Principals of Genetic Epidemiology		0.7
o Genomics in Molecular Medicine		1.4
o Social Epidemiology		0.7
o Advances in Genomic Research		0.4
o Logistic regression		1.4
o Introduction to Bayesian Methods in Clinical and Epidemiological Research		1.4
o Causal Mediation Analysis		0.7
o Study Design		4.3
o Biostatistical Methods I: Basic Principles		5.7
o Biostatistical Methods II: Classical Regression Models		4.3
o Genetic-Epidemiologic Research Methods		5.1
o SNP's and Human Diseases		1.4
o Linux for Scientists		0.6
Advanced courses		
o Repeated Measurements in Clinical Study		1.4
o Advances in Genome-Wide Association Studies		1.4
o Family-based Genetic Analysis		1.4
o A first encounter with next generation sequencing data		1.4
o Mendelian Randomization, Cambridge	2016	1.0
Skills Courses		
o Introduction to Medical writing		1.1
o Courses for the Quantitative Researcher		1.4
o Systematical literature retrieval in other databases	2018	0.6
o Molmed: Photoshop and Illustrator CC Workshop	2019	0.3

NATIONAL CONFERENCES AND PRESENTATIONS

	Year	ECTS
o Department of Internal Medicine, Endocrinology research general meetings	2014-2019	1.0
o Department of Internal Medicine, Laboratory of Human genetics meetings	2014-2019	1.0
o Molecular Epidemiology Research meetings	2014-2019	1.0
o Wetenschappendagen Internal Medicine Department	2015-2019	1.5
-Poster presentations		0.7
o Dutch Society of Calcium and bone	2014-2018	1.5
-Oral Presentations		1.2

INTERNATIONAL CONFERENCES AND PRESENTATIONS

o **European Calcified Tissue Society, Rome**	2016	1.5
-Poster presentation		0.5
o **American Society of Bone and Mineral Research, Atlanta**	2016	1.5
-Poster presentation		0.5
European Calcified Tissue Society, Salzburg	2017	1.5
-Oral poster presentation		0.7
-Oral presentation		0.7
o **International Conference on Frailty and Sarcopenia Research, Barcelona**	2017	1.5
o Oral presentation		0.7
o **CHARGE meeting, New York**	2017	1.0
-Poster presentation		0.5
o **European Calcified Tissue Society, Valencia**	2018	1.5
-Oral Poster presentation		0.7
o **American Society of Bone and Mineral Research, Montreal**	2018	1.5
-Plenary Poster		0.7
o **CHARGE meeting, Rotterdam**	2018	1.0
-Poster presentation		0.5
o **European Calcified Tissue Society, Budapest**	2019	1.5
-Oral Presentation		0.7
-Oral Poster presentation		0.7
-Poster presentation		0.5
o **American Society of Bone and Mineral Research, Orlando**	2019	1.5
-Plenary Poster		0.7

TEACHING ACTIVITIES

	Year	ECTS
o **Teaching assistant at NIHES Erasmus Summer Programme**		4.0
-Genomics in molecular medicine	2016-2019	
-Genome-wide association studies	2016-2019	
- Principles of Research in Medicine and Epidemiology	2018	
o **Teaching assistant at Molmed course**	2017-2019	0.7
-SNPs and Human Diseases practical's		
o **Teaching assistant at NIHES Master course**		
-Genetic-epidemiologic Research Methods	2019	1.0
-Biostatistical Methods I: Basic Principles	2017, 2019	1.0

OTHER

o Research project supervisor – 4th year medical students	2018-2019	2.0
o Master Student supervision	2019-present	1.0
-Artemis Gkitakou – sleep problems and musculoskeletal health		
o Peer review of articles for scientific journals	2017-2020	2.0
-Journal of Bone and Mineral Research, Osteoporosis International, Bone, Scientific Reports, Frontiers of Endocrinology, European Journal of Epidemiology		

WORDS OF THANKS

"A person needs new experiences. They jar something deep inside, allowing you to grow. Without them, it sleeps- seldom to awaken. The sleeper must awaken."

Frank Herbert

Thank you all for awakening the sleeper in me

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Ива и Ирена иако сме километри одалечени знам дека секогаш можам да сметам на вас. Секогаш кога и да се сретневме се чуствував како да не поминале овие години. Фала ви. Дада Вики, Кики, Мими, Ане, Дејан, Даре и Панда истото важи и за вас. Фала ви што секогаш ме пречекувавте со раширени раце кога и да си дојдев дома.

Мајка ми и татко ми немаше да бидам тука ако не бевте вие тука да ме бодрите и подржувате од самиот почеток. Фала што секогаш сте тука за мене и никогаш не се сомневавте во моите одлуки. Брат ми, знам дека те замарам многу. Фала што ме слушаш цело време и што ми одоговараш секогаш на безбројните прашања! Ве сакам неизмерно !

ABOUT THE AUTHOR

Katerina Trajanoska was born on 7th August 1988 in Skopje, Macedonia. In 2007, she graduated as health nurse from the medical high school "Dr Pance Karagjozov" in Skopje, Macedonia. The same year she enrolled at the "Ss. Cyril and Methodius University" in Skopje where she obtained her Medical Doctor's degree in 2013 and a year later successfully passed the medical board exam. During medical school, in 2012, she was granted the ERAWEB Scholarship and went to the University of Rotterdam in the Netherlands for the first time, to perform 4-month training in Clinical Epidemiology. In 2014 she returns to Erasmus Medical Center as a PhD exchange student under ERAWEB scholarship. In 2015, she received her NIHES MSc in Genetic Epidemiology at Erasmus MC and expanded her research project in her current PhD-project entitled "The interplay of bone and muscle in health and disease" under the supervision of Prof. dr. Andre G Uitterlinden, Prof. dr. Fernando Rivadeneira and Dr. Carolina Medina-Gomez. She worked on musculoskeletal health looking at the associations between environmental and genetic factors and various musculoskeletal outcomes.