Network Newsletter 8 | 2009 – Dresden, Germany, August 2009

Dear Members of the Worldwide Network "Who is Active in Diabetes Prevention",
Today we would like to invite you to read our scientific newsletter and thank all for the input they have given to it.

We would like to introduce to you to some articles, related to the prevention of diabetes, which were published internationally in the last month. Members of the network have read and commented on these articles. Our intention is to present the content and the key message of the article clearly written and combined with the comment from a network member about the relevance and importance of this key message to you. This should help you to have the key message in an easy to read format and, if you are interested, to retrieve more detailed information from the original article. We hope this way of presenting articles will be attractive for you. We would appreciate every comment on articles you have read and suggestions for additional articles.

In this newsletter, we have chosen a very recent article from Jerry Kohlberg analyzing the role of exercise in the treatment and prevention of diabetes. Furthermore, we want to introduce an article published in *Diabetes Care* presenting a randomised clinical trial, to evaluate a diabetes prevention self-management intervention program – PREDIAS - which obtained very positive results. With the third article, we are anew focusing on physical activity. Grandes et al. discuss the prescription of physical activity by family practitioners. Additionally, we would like to inform you about the 20th anniversary meeting of the St. Vincent Declaration in Glasgow in November of this year.

We hope that the way we present the newsletter to you, meets your needs and interests. Enjoy the reading and please send us your comments.
Yours truly,

Prof. Peter Schwarz

What is the effect behind exercise activity?

Exercise in the treatment and prevention of diabetes; *Colberg SR, Grieco CR. Curr Sports Med Rep. 2009 Jul-Aug;8(4):169-75.*

What is the background? Physical activity is becoming more and more a key factor in successful diabetes prevention. The inclusion of regular physical activity is critical for optimal diabetes therapy due to its effect on insulin action and glycaemic control. The same mechanism also works in prevention of diabetes. The review presented by Colberg and Grieco discusses the effect and relevance of physical activity onto diabetes prevention and treatment along with the importance and impact of aerobic or resistance or combined training upon glycaemic control. Furthermore, the benefits of different types of

Division Prevention and Care of Diabetes • Department of Medicine • University of Dresden • Fetscherstr. 74 • 01307 Dresden
GERMANY; Tel.: +49 (0)351 – 458 2715 • Fax: +49 (0) 351 458 7319 • Email: info@activeindiabetesprevention.com

physical training are addressed along with guidelines for maintenance of glycaemic balance with exercise.

What was done and what were the results? First, the article addresses the data which are known about physical activity from large preventions studies (DPP and DPS). Then, acute and chronic benefits of physical activity are addressed. The primary acute effects are the lowering of blood glucose and the increase in insulin sensitivity. The authors clearly state that this effect is reached only with at least exercise every 48 hours. The chronic effects are seen as a modification of insulin signal transduction and an increased lipid oxidative capacity in skeletal muscle combined with improved insulin sensitivity but with a different pathophysiological background than acute effects. Furthermore, the authors discuss and justify in this article the effect of physical activity onto glycaemic control as well as the importance of patient self-management aspects. They discuss the physiological aspects of glycaemia changes versus exercise referring to certain precautions to obtain more safety. Finally, the authors conclude that physical activity plays a major role in the prevention and control of insulin resistance, pre-diabetes and diabetes in combination with a lifestyle improvement. They see both aerobic and anaerobic forms of training to have an effect to improve sensitivity to insulin short time and long term. Exercise is safe as long as certain precautions are taken. To reach a benefit from physical activity, a minimum every 48 to 72 hours physical exercise is necessary.

Overall comments: This article is important for the field of prevention of diabetes. In an easy-to-read format with well-searched references, the authors indicate the role and importance of physical activity for diabetes prevention and management. The authors make the pathophysiology behind it easy to understand and take readers on the hands to lead him or her through an often difficult to understand concept. One may concern the need of more details regarding physical activity dosages. The quintessence is to “be physical active every 48 to 72 hours and you will prevent diabetes.”

Read: http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=19584602

Read and commented for the Network “Who is active in diabetes prevention” by
Peter Schwarz, Dresden, Germany; peter.schwarz@uniklinikum-dresden.de, 27.07.2009

Standardized guided intervention to prevent diabetes is an achievable goal for prevention practise

Prevention of diabetes self-management program (PREDIAS): effects on weight, metabolic risk factors, and behavioral outcomes. *Kulzer B, Hermanns N, Gorges D, Schwarz P, Haak T; Diabetes Care. 2009 Jul;32(7):1143-6. Epub 2009 Jun 9.*

What is the background? We all know that the prevalence of type 2 diabetes is increasing in developed as well as developing countries. Diabetes is associated with an increasing morbidity and mortality and, therefore, activities to prevent diabetes are so important. A recent meta-analysis showed that type 2 diabetes could be effectively prevented or delayed by lifestyle modification. The challenge is how to implement the evidence from the prevention studies into clinical intervention practice and still being practical, efficient and effective.

What was done and what were the results? Based on the experiences of the Diabetes Prevention Program, the authors developed a structured group-based intervention program for the prevention of type 2 diabetes (PREDIAS). The aim of this presented randomised controlled trial was to evaluate the

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efficacy of PREDIAS with regard to the primary outcome weight reduction, and behavior, metabolic as well as psychological outcomes as secondary variables in a 12 month follow-up. The PREDIAS group program consists of 12 lessons. The control group received written information about diabetes prevention. In this study 182 persons participated. After 12 months, members' weight loss was significantly higher ($p < .001$) in PREDIAS than in the control group (-3.8 ±5.2 kg vs. -1.4 ±3.9 kg). Fasting glucose rose 1.8 ±13.14 mg/dl in the control group, whereas it fell by 4.3 ±11.3 mg/dl in PREDIAS ($p < .001$). The duration of physical activity per week was significantly more increased in PREDIAS than in the control group (46.4 ±90.4 minutes vs. 30.9 ±71.9 minutes; $p = .04$). Cognitive restraint (3.4 ±3.8 vs. 2.0 ±3.9; $p = .03$) and disinhibition (-1.2 ± 2.8 vs. -0.3 ± 2.6; $p = .04$) as indicators of modified eating behavior were also significantly more improved in the PREDIAS group. PREDIAS achieved a significantly greater improvement in body weight, fasting glucose, physical activity, and eating behavior. The observed improvements in these risk factors are equivalent to the effects of previously published prevention programs.

Overall comments: It is very important to have structured and standardized intervention programs for diabetes prevention, which enables the implementation into general clinical practice. This is the current challenge we face. With the PREDIAS we have now such a program concept which was tested in a randomized designed study. This study showed that standardized guided interventions to prevent diabetes are an achievable goal for the prevention practice. In Germany, this program is step by step implemented in primary health care. PREDIAS is an example of how diabetes prevention can be realized in an effective and efficient way in standard clinical practise.

Read more : http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=19509014

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Peter Schwarz, Dresden, Germany; peter.schwarz@uniklinikum-dresden.de, 27.07.2009

Physical activity prescribed by family practitioners

Effectiveness of physical activity advice and prescription by physicians in routine primary care: a cluster randomized trial. *Grandes G, Sanchez A, Sanchez-Pinilla RO, Torcal J, Montoya I, Lizarraga K, Serra J; PEPAF Group. Arch Intern Med. 2009 Apr 13;169(7):694-701.*

What is the background? Physical activity promotion is one of the major priorities in the successful prevention of type 2 diabetes. It is a difficult challenge and it is still unclear what the specific recommendations are, what the right dose of physical activity is and who should take the responsible role for interventions. One of the interesting questions is the effectiveness of physical activity advice and the prescription of physicians in routine primary care. This was assessed by the study reported from Grandes et al. in the Archives of Internal Medicine 2009.

What was done and what were the results? 56 Spanish family physicians were randomized to either the intervention (N=29) or standard care (N=27) arms of the trial. All physicians recruited 4,317 physical inactive patients, 2,248 were randomized to the intervention and 2,069 for the control protocols. The intervention physicians provided physical activity advice and prescription to all patients. The control group only received standard care. The main outcome measure was the change in physical activity; it was followed by cardiorespiratory fitness and health-related quality of life. After six months of the intervention, patients increased their physical activity to 18 minutes per week compared with the control group.

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The intensive physical activity recommendation group increased their physical activity up to 3.9 % compared with the control group. No differences were found in cardiorespiratory fitness and health-related quality of life.
The authors concluded that family physicians were effective in increasing physical activity in primary care patients but the overall effect was small but relevant for public health population.

Overall comments: This study is interesting because it shows that physicians' advice can increase physical activity but the effect is small as shown in this study with only 18 minutes per week. What does this mean for the prevention of type 2 diabetes? If we are recommending 150 or 175 minutes physical activity per week and it is visible in this study that the physician advice increased the physical activity from 65 minutes per week to 83 minutes per week, we still have a lot to do in finding the right intervention strategy to successfully increase the physical activity level in persons with increased diabetes risk. Physicians' advice is probably a very important tool because many people believe what their physician is telling them. This study shows us that it can be effective but we have to think about much more effective intervention strategies using physicians' advice but also other delivery channels which reach an effective increase in physical activity level.

Read more : http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=19364999

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http://www.worlddiabetescongress.org/st-vincent

Key dates	**Welcome ceremony: Sat 21 Nov; Programme: Sun 22 Nov - Mon 23 Nov Social event: Sun 22 Nov**

The 20th anniversary meeting of the St. Vincent Declaration is jointly organized by the European Region of the International Diabetes Federation (IDF Europe), the European Association for the Study of Diabetes (EASD), the Alliance for European Diabetes Research (EURADIA), the Federation of European Nurses in Diabetes (FEND), the International Society for Paediatric and Adolescent Diabetes (ISPAD), Primary Care Diabetes Europe (PCDE), and Diabetes UK.