Breakfast in Denmark. Prevalence of Consumption, Intake of Foods, Nutrients and Dietary Quality. A Study from the International Breakfast Research Initiative

Breakfast is considered by many to be the most important meal of the day. This study examined the intake of nutrients and foods at breakfast among Danes and the relation to the overall dietary quality. Data were derived from the Danish National Survey on Diet and Physical Activity 2011-2013, a cross-sectional national food consumption study. A total of 3680 participants aged 6-75 years were included in the analyses of breakfast consumption. The Nutrient Rich Food Index 9.3 method was used to examine the overall dietary quality of the diet. The intake of nutrients and foods at breakfast were compared across dietary quality score tertiles by ANCOVA adjusted for energy and socio economic status. Breakfast was eaten frequently by children and adults and contributed with 18-20% of total energy intake. Breakfast was relatively high in dietary fibre, B vitamins, calcium and magnesium and low in added sugar, total fat, sodium, vitamin A and D. A decrease in the intake of added sugar, total fat and saturated fat and an increase in the intake of dietary fibre and most micronutrients were seen across tertiles of dietary quality scores. Commonly consumed foods provided at breakfast in Denmark included bread, breakfast cereals and dairy products as well as water, coffee and juice, while intakes of fruits, vegetables, cakes and soft drinks were low.
Building school-based social capital through 'We Act - Together for Health' - a quasi-experimental study

Social capital has been found to be positively associated with various health and well-being outcomes amongst children. Less is known about how social capital may be generated and specifically in relation to children in the school setting. Drawing on the social cohesion approach and the democratic health educational methodology IVAC (Investigation - Vision - Action - Change) the aim of this study was to examine the effect of the Health Promoting School intervention 'We Act - Together for Health' on children's cognitive social capital. A quasi-experimental controlled pre- and post-intervention study design was conducted with 548 participants (mean age 11.7 years). Cognitive social capital was measured as: horizontal social capital (trust and support in pupils); vertical social capital (trust and support in teachers); and a sense of belonging in the school using questions derived from the Health Behaviour in School Children study. A series of multilevel ordinal logistic regression analyses was performed for each outcome to estimate the effect of the intervention. The analyses showed no overall significant effect from the intervention on horizontal social capital or vertical social capital at the six-month follow-up. A negative effect was found on the sense of belonging in the school. Gender and grade appeared to be important for horizontal social capital, while grade was important for sense of belonging in the school. The results are discussed in relation to We Act's implementation process, our conceptual framework and methodological issues and can be used to direct future research in the field. The study finds that child participation in health education can affect the children's sense of belonging in the school, though without sufficient management support, this may have a negative effect. With low implementation fidelity regarding the Action and Change dimension of the intervention at both the school and class level, and with measurement issues regarding the concept of social capital, more research is needed to establish a firm conclusion on the importance of the children's active participation as a source for cognitive social capital creation in the school setting. https://www.isrctn.com/ISRCTN85203017.

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Research Group for Risk-Benefit, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, University of London, Steno Diabetes Centre
Number of pages: 13
Publication date: 2018
Peer-reviewed: Yes
Effects of Exposure to Carbon Dioxide and Bioeffluents on Perceived Air Quality, Self-assessed Acute Health Symptoms and Cognitive Performance

The purpose of this study was to examine the effects on humans of exposure to carbon dioxide (CO₂) and bioeffluents. In three of the five exposures, the outdoor air supply rate was high enough to remove bioeffluents, resulting in a CO₂ level of 500 ppm. Chemically pure CO₂ was added to this reference condition to create exposure conditions with CO₂ at 1,000 ppm or 3,000 ppm. In two further conditions, the outdoor air supply rate was restricted so that the bioeffluent CO₂ reached 1,000 ppm or 3,000 ppm. The same twenty-five subjects were exposed for 255 minutes to each condition. Subjective ratings, physiological responses and cognitive performance were measured. No statistically significant effects on perceived air quality, acute health symptoms or cognitive performance were seen during exposures when CO₂ was added. Exposures to bioeffluents with CO₂ at 3,000 ppm reduced perceived air quality, increased the intensity of reported headache, fatigue, sleepiness and difficulty in thinking clearly, and reduced speed of addition, the response time in a redirection task and the number of correct links made in the cue-utilisation test. This suggests that moderate concentrations of bioeffluents, but not pure CO₂, will result in deleterious effects on occupants during typical indoor exposures.

General information
State: Published
Organisations: Department of Civil Engineering, Section for Indoor Climate and Building Physics, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, Shanghai Jiao Tong University
Contributors: Zhang, X., Wargocki, P., Lian, Z., Thyregod, C.
Pages: 47-64
Publication date: 2017
Peer-reviewed: Yes

Publication information
Journal: Indoor Air
Volume: 27
Issue number: 1
ISSN (Print): 0905-6947
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BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 3.9
Web of Science (2017): Impact factor 4.396
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.55
Web of Science (2016): Impact factor 4.383
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 3.88
Web of Science (2015): Impact factor 4.33
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 4.57
Web of Science (2014): Impact factor 4.904
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 3.63
Web of Science (2013): Impact factor 4.202
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Analysis of data from the MariCare Smartfloor at Skovhuset Care Home

In this project data is analysed from a smartfloor which is installed in an elderly care home. Two lines of investigation are carried out. The first uses “event data” from the smartfloor. This data contains every event (bathroom visits, people entering/exiting the room etc.) registered by the floor over a one year period. Control charts are used to investigate a link between the event data and UTI incidence. A clear predictor for UTI is not found, but the value of control charts in this setting is demonstrated. In the second line of investigation “position data” is analysed. The position data is more limited.
than the event data in that it is extracted manually using image analysis on the smartfloor user interface program. Using the position data, the trajectories traced by a resident moving about their room are visualised and properties such as direction and speed are investigated. A method is found for comparison of trajectories to determine their degree of similarity and this method can identify unusual trajectories in the dataset.

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis
Contributors: Spooner, M. P., Jørgensen, T. M., Thyregod, C., Ersbøll, B. K.
Number of pages: 48
Publication date: 2015

Publication information
Place of publication: Kgs. Lyngby
Publisher: Technical University of Denmark (DTU)
Original language: English

Bibliographical note
In cooperation with Charlotte Kock Petersen of Skovhuset Care Home and Palle Stevn of MariCare
Research output: Research › Report – Annual report year: 2016

Evaluation of acceptance sampling related to sealing plug and pipe stub.

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis
Contributors: Thyregod, C., Ersbøll, B. K.
Number of pages: 20
Publication date: 2015

Publication information
Publisher: DTU Compute
Original language: English

Bibliographical note
Confidential report, not accessible to the public.
Research output: Communication › Report – Annual report year: 2015

Model for TampImp-DeltaSigmaH Interaction.

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis
Contributors: Spooner, M. P., Stockmarr, A., Thyregod, C., Ersbøll, B. K.
Number of pages: 40
Publication date: 2015

Publication information
Publisher: DTU Compute
Original language: English

Bibliographical note
Confidential report, not accessible to the public.
Research output: Communication › Report – Annual report year: 2015

SigmaH for Switches and Crossings

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis
DTU's undersøgelser af lav adhæsion / glatte skinner for Transportministeriet og DSB

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, Department of Management Engineering, Production and Service Management, Risk Research Group, Technology and Innovation Management, Department of Mechanical Engineering, Solid Mechanics, Department of Chemical and Biochemical Engineering, The Danish Polymer Centre, Danish Polymer Center, Technical University of Denmark
Number of pages: 568
Publication date: 2014

Publication information
Publisher: Danmarks Tekniske Universitet (DTU)
Original language: Danish
Electronic versions:
IC3_IC4_small_1_EXECUTIVE_SUMMARY.pdf
Research output: Commissioned › Report – Annual report year: 2014

Optimering af billetkontrol.

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis
Contributors: Thyregod, C., Ersbøll, B. K.
Number of pages: 38
Publication date: 2014

Publication information
Publisher: DTU Compute
Original language: English

Bibliographical note
Confidential report, not accessible to the public.
Research output: Communication › Report – Annual report year: 2014

Upstream DoE Parameters.

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis
Contributors: Thyregod, C.
Number of pages: 72
Publication date: 2014

Publication information
Publisher: DTU Compute
Original language: English

Bibliographical note
Confidential report, not accessible to the public.
Research output: Communication › Report – Annual report year: 2014

Class 4 Defects

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis
Basal insulin analogues in diabetic pregnancy: a literature review and baseline results of a randomised, controlled trial in type 1 diabetes

As basal insulin analogues are being used off-label, there is a need to evaluate their safety (maternal hypoglycaemia and fetal and perinatal outcomes) and efficacy [haemoglobin A\textsubscript{1c} (HbA\textsubscript{1c}), fasting plasma glucose, and maternal weight gain]. The aim of this review is to provide an overview of the current literature concerning basal insulin analogue use in diabetic pregnancy, and to present the design and preliminary, non-validated baseline characteristics of a currently ongoing randomized, controlled, open-label, multicentre, multinational trial comparing insulin detemir with neutral protamine hagedorn insulin, both with insulin aspart, in women with type 1 diabetes planning a pregnancy (n = 306) or are already pregnant (n = 164). Inclusion criteria include type 1 diabetes > 12 months' duration; screening HbA\textsubscript{1c} \leq 9.0\% (women recruited prepregnancy), or pregnant with gestational age 8–12 weeks and HbA\textsubscript{1c} \leq 8.0\% at randomization. At confirmation of pregnancy all subjects must have HbA\textsubscript{1c} \leq 8.0\%. Exclusion criteria include impaired hepatic function, cardiac problems, and uncontrolled hypertension. Subjects are randomized to either insulin detemir or neutral protamine hagedorn insulin, both with prandial insulin aspart. The results are expected mid-2011 with full publications expected later this year. Baseline characteristics show that basal insulin analogues are already frequently used in pregnant women with type 1 diabetes. This study will hopefully elucidate the safety and efficacy of the basal insulin analogue detemir in diabetic pregnancy. Copyright © 2011 John Wiley & Sons, Ltd.
Using Estimated Values of Capability Indices for Batch Acceptance

General information
State: Published
Organisations: Department of Informatics and Mathematical Modeling
Contributors: Thyregod, P., Bucher, D., Madsen, C.
Publication date: 2004
Statistical methods for assessment of blend homogeneity

In this thesis the use of various statistical methods to address some of the problems related to assessment of the homogeneity of powder blends in tablet production is discussed. It is not straightforward to assess the homogeneity of a powder blend. The reason is partly that in bulk materials as powder blends there is no natural unit or amount to define a sample from the blend, and partly that current technology does not provide a method of universally collecting small representative samples from large static powder beds. In the thesis a number of methods to assess (in)homogeneity are presented. Some methods have a focus on exploratory analysis where the aim is to investigate the spatial distribution of drug content in the batch. Other methods presented focus on describing the overall (total) (in)homogeneity of the blend. The overall (in)homogeneity of the blend is relevant as it is closely related to the (in)homogeneity of the tablets and therefore critical for the end users of the product. Methods to evaluate external factors, that may have an influence on the content in blend samples, as e.g. sampling device, have been presented. However, the content in samples is also affected of internal factors to the blend e.g. the particle size distribution. The relation between particle size distribution and the variation in drug content in blend and tablet samples is discussed. A central problem is to develop acceptance criteria for blends and tablet batches to decide whether the blend or batch is sufficiently homogeneous (uniform) to meet the need of the end users. Such criteria are most often criteria regarding sample values rather than criteria for the quality (homogeneity) of the blend or tablet batch. This inherently leads to uncertainty regarding the true quality of a specific blend or batch. In the thesis it is shown how to link sampling result and acceptance criteria to the actual quality (homogeneity) of the blend or tablet batch. Also it is discussed how the assurance related to a specific acceptance criteria can be obtained from the corresponding OC-curve. Further, it is shown how to set up parametric acceptance criteria for the batch that gives a high confidence that future samples with a probability larger than a specified value will pass the USP threeclass criteria. Properties and robustness of proposed changes to the USP test for content uniformity are investigated by the use of simulations, and single sampling acceptance plans for inspection by variables that aim at matching the USP proposal have been suggested.
Projects:

**Smart innovation - Learningbank: Learning using VR**

Digital Learning

Thyregod, C., Project Participant, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis

Rootzén, H., Project Manager, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis

01/09/2017 → ...

Collaborators: Learningbank

Project: Research

**Strengthen ISS Global A/S before negotiations through data analysis on Fleet LSI data**

Thyregod, C., Supervisor, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis

Rootzén, H., Main Supervisor, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis

Samsøe, P. L., Other

01/01/2017 → 06/07/2017

Project: Research

**Visualization, Analysis and Modelling of On-street Parking Data**

Master project

Thyregod, C., Supervisor, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis

Ersbøll, B. K., Main Supervisor, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis

Notarangelo, R., Project Participant

01/04/2016 → 28/09/2016

Collaborators: EasyPark

Project: Research

**Optimisation of biodevice production**

Master project

Thyregod, C., Supervisor, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis

Clemmensen, L. K. H., Main Supervisor, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis

Rabøl, M. P., Project Participant

01/01/2016 → 04/06/2016

Collaborators: Scandinavian Micro Biodevice ApS

Project: Research

**Smart Innovation: Parking Guidance**


Thyregod, C., Project Participant, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis

Ersbøll, B. K., Project Participant, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis

01/01/2015 → 31/10/2016

Collaborators: EasyPark, DTU Scion

Project: Research
Intelligent Quality Assessment of Railway Switches and Crossings (INTELLISWITCH)
Thyregod, C., Project Participant, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis
Ersbøll, B. K., Project Participant, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis
Juul Jensen, D., Project Manager, Department of Wind Energy, Materials science and characterization
Innovation Fund Denmark: DKK12.70
01/03/2015 → 31/12/2019
Collaborators: Banedanmark
Award relations: Intelligent Quality Assessment of Railway Switches and Crossings (INTELLISWITCH)
Project: Research

Metoder til validering af prøvetagningsmetoder for bulkmaterialer
Thyregod, C., PhD Student, Department of Informatics and Mathematical Modeling
Thyregod, P., Main Supervisor, Department of Informatics and Mathematical Modeling
Grønlund, P., Supervisor
Iwersen, J., Supervisor
Tvermoe, C., Supervisor
Rootzén, H., Examiner, Department of Informatics and Mathematical Modeling
Kristensen, H. G., Examiner
Windfeld, K., Examiner
Erhvervsforskerordningen
01/01/1999 → 01/01/2002
Award relations: Metoder til validering af prøvetagningsmetoder for bulkmaterialer
Project: PhD

INTELLISWITCH: Intelligent Quality Assessment of Railway Switches and Crossings
This project aims at significantly improving the safety, reliability and operational lifetime of the 3500 switches and crossings (S&Cs) in the Danish railway network. The project is a close cooperation between the Technical University of Denmark (DTU), the Danish rail infrastructure provider Rail Net Denmark and four affiliated European partners with significant expertise within this field. An inter-disciplinary scientific effort is employed to obtain enhanced rail transport reliability and regularity simultaneously with significant savings in S&Cs maintenance costs. The project results will make maintenance based on intelligent fault prediction tools, instead of the presently used regular planned inspections, and it will provide sophisticated tools to prevent hidden faults from developing to failure in the future. In a novel approach, the project will install state-of-the-art sensor technology in selected S&Cs and correlate dynamic parameters during train passage with static geometry data from conventional measurement vehicles. Monitoring of the dynamic responses will provide diagnosis of patterns that indicate when components or ballast begin to deviate from fully functional conditions. Modelling of dynamics will identify root causes to signs of degradation. Damage assessment of components identified by anomalous readings will be done by metallurgical examinations. Data and results will be processed by a holistic model that can produce Maintenance Performance Indicators (MPI) for the S&C condition. The correlation of sensor data to measuring vehicle data will allow existing data to be used reliably as input for the MPI model. It is expected that this project will enable optimisation of maintenance procedures, by which appropriate maintenance can be predicted in advance, thus avoiding unscheduled repairs and delays in the railway traffic.
Juul Jensen, D., Project Manager, Department of Wind Energy, Materials science and characterization
Galeazzi, R., Project Participant, Department of Electrical Engineering, Automation and Control
Blanke, M., Project Participant, Department of Electrical Engineering, Automation and Control
Hansen, S., Project Participant, Department of Electrical Engineering, Automation and Control
Barkhordari, P., Project Participant, Department of Electrical Engineering, Automation and Control
Asadzadeh, S. M., Project Participant, Department of Electrical Engineering, Automation and Control
Santos, I., Project Participant, Department of Mechanical Engineering, Solid Mechanics
Tejada, A. D. M., Project Participant, Department of Mechanical Engineering, Solid Mechanics
Danielsen, H. K., Project Participant, Department of Wind Energy, Materials science and characterization
Dhar, S., Project Participant, Department of Wind Energy, Materials science and characterization
Ersbøll, B. K., Project Participant, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis
Kulahci, M., Project Participant, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis
Thyregod, C., Project Participant, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis
Hovad, E., Project Participant, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis
InnovationsFonden: DKK12,700,000.00
01/03/2015 → 28/02/2019
Collaborators: Banedanmark
Award relations: Intelligent Quality Assessment of Railway Switches and Crossings
Project: Research
Statistical methods for assessment of blend homogeneity
ph.d. project financed by the Danish Academy of Technical Sciences (ATV) and Novonordisk A/S. The purpose of the project is to discuss acceptance criteria for blend and tablet batches in pharmaceutical production.

Thyregod, P., Project Manager, Department of Informatics and Mathematical Modeling
Thyregod, C., Project Participant, Department of Informatics and Mathematical Modeling
Iwersen, J., Project Participant, Novo Nordisk A/S
Gravenlund, P., Project Participant, Novo Nordisk A/S
Tvermoes Rezai, C., Project Participant, Novo Nordisk A/S
01/01/1999 → 31/12/2002
Collaborators: Novo Nordisk A/S
Project: Research

Activities:

Introduction to Applied Statistics with R for PhD Students
Period: 9 Jun 2017 → 30 Jun 2017
Anders Stockmarr (Lecturer)
Bjarne Kjær Erbsøll (Lecturer)
Elisabeth Wreford Andersen (Guest lecturer)
Murat Kulahci (Lecturer)
Andreas Baum (Lecturer)
Camilla Thyregod (Other)
Jesper Fink Andersen (Other)
Department of Applied Mathematics and Computer Science
Statistics and Data Analysis

Related organisation

Introduction to Applied Statistics with R for PhD Students
Stockmarr, A. (Lecturer), Erbsøll, B. K. (Lecturer), Andersen, E. W. (Guest lecturer), Kulahci, M. (Lecturer), Baum, A. (Lecturer), Thyregod, C. (Other), Andersen, J. F. (Other)
9 Jun 2017 → 30 Jun 2017
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

02411 Statistical Design and Analysis of Experiments
Period: 1 Sep 2015 → 31 Aug 2016
Camilla Thyregod (Lecturer)
Department of Applied Mathematics and Computer Science
Statistics and Data Analysis

Description
Course lecturer

Related organisation

02411 Statistical Design and Analysis of Experiments
Thyregod, C. (Lecturer)
1 Sep 2015 → 31 Aug 2016
Activity: Other

Design of Experiments
Period: Sep 2013 → …
Camilla Thyregod (Lecturer)
Department of Applied Mathematics and Computer Science
Statistics and Data Analysis

**Description**
3 day course
Activity: Other