GOAL Lifestyle Implementation Trial For The Prevention Of Type 2 Diabetes
GOAL Program

- Päijät-Häme Hospital District and its 15 municipalities
- National Public Health Institute
- UKK Institute for Health Promotion
- University of Helsinki, Palmenia Centre for Continuing Education and Department of Social Policy
- Lahti University of Applied Sciences

GOAL (Good Ageing in Lahti region):
- comprehensive health promotion program in the Province of Päijät-Häme
- target ageing population AND social and health care personnel
- prevention of major chronic diseases; promotion of functional capability
GOAL model

GOAL group

Municipal administration

Community-based interventions/specific target programmes

Type II diabetes prevention

Regional application of Current Care guidelines

Promotion of functional capability

Evaluation and cohort study
General principles behind GOAL interventions

- Use existing resources more efficiently, e.g.
  - Group instead of individual counselling
  - PHC nurses and physiotherapists as facilitators

- Create links with other potential stakeholders
  - PHC linked with municipal sports and recreation office to lower the threshold of using the existing facilities

- Shared costs if new resources are required:
  - A dietician in all groups during one session, payed jointly by the municipalities (hospital district)

- GOAL supports by bringing in expertise and research:
  - Programme development, training and evaluation
GOAL Lifestyle Implementation Trial aims

• To change HC preventive practices by introducing a life-style counselling model with
  – Evidence-based, measurable goals
  – Theory-based methods for behaviour change
  – Practical tools
  – Empowerment of patients and professionals

• To support implementation and maintenance

• To develop further by multilevel evaluation
  – Participants’ behaviour & determinants of behaviour, risk factors
  – Method feasibility
  – Economical analysis
Diabetes Prevention Study* (DPS): Goals for Diet and Physical Activity

1. No more than 30% of energy from fat
2. No more than 10% of energy from saturated fats
3. At least 15g / 1000 kcal fiber
4. At least 30 min / day moderate physical activity
5. At least 5% weight reduction

DPS: Success in reaching the goals

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<thead>
<tr>
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<tbody>
<tr>
<td>1</td>
<td>Amount of fat:</td>
<td>47%</td>
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<tr>
<td>2</td>
<td>Type of fat:</td>
<td>26%</td>
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<tr>
<td>3</td>
<td>Amount of fiber:</td>
<td>25%</td>
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<tr>
<td>4</td>
<td>Physical activity:</td>
<td>86%</td>
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<tr>
<td>5</td>
<td>Weight:</td>
<td>43%</td>
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49/265 (18.5 %)

High-risk subjects (IGT); none of those reaching 4-5 goals got T2D during the six-year follow-up (3.2 yrs average).

Theories Behind the GOAL Lifestyle Implementation Trial

- **Health Action Process Approach**
  - Motivation, intention, planning and action

- **Self-determination theory**
  - Intrinsic motivation, will to act
  - Autonomous regulation vs. controlled regulation

- **Self-regulation theories**
  - Goal setting, planning, self-monitoring, feedback

- **Positive emotions (e.g., Broaden-and-build-theory)**
  - Positive emotions, cognitions and actions have health benefits

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The Health Action Process Approach

<table>
<thead>
<tr>
<th>Sessions 1-2</th>
<th>Sessions 3-4</th>
<th>Sessions 5-6</th>
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<tbody>
<tr>
<td>Perceived self-efficacy</td>
<td>Intention</td>
<td>Planning</td>
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<tr>
<td>Outcome expectancies</td>
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<tr>
<td>Risk perception</td>
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<td>Recovery</td>
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</table>

The counselling provides tools for:

- Creating motivation by risk awareness, positive outcome expectations and self-efficacy
- Self-monitoring of behaviour
- Goal setting and planning
- Action initiation, relapse management and maintenance
- Positive thinking and social support
Components: Sessions 1 & 2

- Learning to know one another
- Rules for group work
- Discussion on current beliefs: How does life-style influence health?
- Introduction: Diabetes, risk factors, effects, prevention
- Reflective discussion and re-evaluation of beliefs
- Exercise: Dream – where do we want to be in 12 mo
- Tools to make dream come true: goals, planning, home-work
- Homework assignments: dietary self-monitoring, PA schedules, examples of difficult and easy situations
- Introduction: Prevention really works
- Evaluation of own behaviour: PA schedules, fat & fibre tests
- Discussion: own habits vs. preventive goals
- Role model stories: what contributes to success?
- Discussion: analysis & re-attribution of previous experiences
- Homework assignment: preparation for goal setting, PA and eating habit schedules
- Discussion: barriers for group work
1D. Physical Activity Schedule

Draw a line for each 10 minutes of physical activity during the week.
Also tell how you have found yourself.

<table>
<thead>
<tr>
<th></th>
<th>Walking, Biking, Swimming</th>
<th>Shoveling snow, Chopping wood, Beating rugs, Heavier garden work</th>
<th>Gymnastic exercises, weight lifting</th>
<th>Volley ball, Tennis, Other ball games</th>
<th>Nordic pole walking, Skiing, (Exercise) biking</th>
<th>Other</th>
<th>How do you find yourself?</th>
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Name: __________________________________________________ Group ID: _________________________
2H. Eating habits
Evaluate and mark with a cross all your meals during the week. If you had snacks, tell also what they were.

<table>
<thead>
<tr>
<th></th>
<th>A breakfast high on fiber</th>
<th>Snack</th>
<th>Lunch following the plate model</th>
<th>Snack</th>
<th>Supper following the plate model</th>
<th>Snack</th>
<th>Nibbling in-between meals</th>
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<td>Yes</td>
<td>Almost</td>
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Name: __________________________________________________ Group ID: _________________________
Components: Sessions 3 & 4

- Feedback from the PA schedule
- Introduction: health effects of PA
- Goal planning:
  - WHAT: are the goals concrete, positive, attainable, developing?
  - Short-term WHERE, WHEN, HOW, EQUIPMENT
  - Feedback: difficult and easy situations
- Goal setting
- Homework assignments: feedback and reinforcement, PA and eating habit schedules
- Possibilities for PA in local community

- Food choices: feedback from dietary self-monitoring
- Introduction: How to eat healthy
- Goal planning:
  - WHAT: are the goals concrete, positive, attainable, developing?
  - Short-term WHERE, WHEN, HOW, EQUIPMENT
  - Feedback: difficult and easy situations
- Goal setting
- Exercise: How to make favourites lighter
- Homework assignment: positive feedback in getting social support, PA and eating habit schedules

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Goal setting: Eating

**Eating**
- I've already substituted butter with margarine and vegetable oil
- I do not eat much vegetables, and mostly as cooked or fried
- I don't eat fruit

**Health and wellbeing**
- I'm overweight and have elevated blood pressure
- I start sweating and get out of breath and tire out easily
- I have difficulties in leaning down and tying my shoelaces
- I suffer from constipation

**Next step... During the 1st week I intend to**

**Eating**

**WHAT:**
- I eat using the plate model

**WHERE:**
- At the worksite cafeteria

**WHEN:**
- Every day at lunch

**PREPARATIONS TO GUARANTEE SUCCESS:**
- I remind myself before going to cafeteria
- I ask the cafeteria personnel to apportion using the plate model
- I add salad myself
- I tell my work mates
- I reward myself (not with food!)

**Subsequent step... During the next month I intend to**

**Eating**

**WHAT:**
- I start eating fruit
- I eat fruit and veggies on all meals

**WHERE:**
- At home and at work

**WHEN:**
- With coffee, as a snack, something on each meal

**PREPARATIONS TO GUARANTEE SUCCESS:**
- I write down the fruit and veggies on my shopping list
- I count how much I need to buy to get my daily ½ kilo
- I take fruit with me to work and set them so that I can see them

**Health and wellbeing**

- My weight has gone down below 100 kg
- My blood pressure is better
- I'm able to do more and I'm not panting
- Heat doesn't feel unbearable
- My digestion functions without medication

Here I want to reach

**Eating**
- I eat all my meals using the plate model
- I eat ½ kilo fruit & veggies every day

**WHERE:**
- At home, at work, also at my summer cottage!

**WHEN:**
- Always

Mr. Goal

Name: __________________________
Group ID: _________________
A half kilo each day: Fruit and vegetables

- Comprehensiveness of diet
- Plate model:
  - \( \frac{1}{2} \) veggies, \( \frac{1}{4} \) protein-rich food, \( \frac{1}{4} \) carbohydrates
Heave into view:
Favour the unsaturated, soft fat

Current dietary fat content

Recommended dietary fat content

poly-unsaturated fat
mono-unsaturated fat
saturated fat
Heave into view:
Favour the unsaturated, soft fat

<table>
<thead>
<tr>
<th>White bread, cream cheese</th>
<th>White bread, low-fat cheese, margarine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rye bread, baloney, yoghurt</td>
<td>Rye bread, ham (lean), margarine, low-fat yoghurt</td>
</tr>
<tr>
<td>Total fat 13 g: 13 g saturated &amp; invisible, 0 g visible</td>
<td>Total fat 9 g: 4 g saturated &amp; invisible, 5 g visible</td>
</tr>
</tbody>
</table>

By choosing cheese and yoghurt products with vegetable fat you can lower the saturated fat content even more

*) Rasvan laatu on ihanteellinen, kun kovan rasvan osuus on keskiintään 1/3 ja pehmeän rasvan osuus vähintään 2/3.
Crave for Grain

- High fiber

\[ 15 \text{ g} / 1000 \text{ kcal} \]

or

\[ 25 - 35 \text{ g} / \text{ day} \]
Goal setting: Physical activity

Name: Mrs Goal
Group ID: B112

I’m here now

Physical activity
- I do not exercise (I used to go to the gym)
- I walk to bus stop (100 meters) about four times per day, slowly
- On Saturdays I walk while shopping at the mall
- I do household work (vacuum, beat carpets) appr. 2h/week

Health and wellbeing
- Overweight and elevated blood pressure
- I feel tired often
- I suffer from headaches and pain in my neck and shoulders

Next step… During the 1st week I intend to

Physical activity
WHAT:
- I walk
WHERE:
- On my way to work I get earlier off the bus
WHEN:
- Morning and afternoon
PREPARATIONS TO GUARANTEE SUCCESS:
- I get up 15 min earlier
- I take appropriate clothing
- I take a fruit for the afternoon
- I tell my husband I’m coming home a little later
- I tell in advance to my workmate I’m getting off earlier than usual

Subsequent step… During the next month I intend to

Physical activity
WHAT:
- I walk part of the way to work every day
- I go for a walk once-a-week
- I’ll find out about local possibilities for gymnastic exercise and join in
WHERE:
- I’ll walk around lake Pikku-Vesijarvi
WHEN:
- Sunday mornings for an hour; gym on a day with none of my favourite programs on TV
PREPARATIONS TO GUARANTEE SUCCESS:
- I’ll take my husband with me!

Here I want to reach

Physical activity
WHAT:
- I’m walking part of the way to work every day
- I go for a brisk one-hour walk once-a-week (appr. 5 km)
- I go to gym regularly once-a-week
WHERE:
- I have many different places where I can walk
WHEN:
- A walk on Sunday mornings, at gym on Wednesday evenings

Health and wellbeing
- Blood pressure has gone down
- I’ve lost weight
- I feel I have more energy
- Pains and aches do not stop me from enjoying life
Components: Sessions 5 & 6

- Discussion: evaluating and refining goals
- Discussion: routines – have they already changed? PA schedule, fat & fibre tests
- Intermediate goals (next 6 mo)
- Exercise: how to overcome barriers / use resources in maintaining behaviour change
- Possibilities for peer support system
- Homework assignments: PA and eating habit schedules

- Discussion: evaluating and refining goals
- Discussion: routines – have they already changed? PA schedule, fat & fibre tests
- Discussion: analysis and re- attribution of success and failure
- Discussion: future goals
- Discussion: Evaluation of the group work
Setting & target group

- Primary health care centres, 14 municipalities
- 36 groups, N = 389, men (N = 103, 26.3%); women (N = 286, 73.7%), N = 352 non-diabetic at baseline
- Age 50-65 years
- At least moderate risk of type II diabetes:
  - 1/6 will get diabetes in the next 10 years
  - Type 2 diabetes risk test by Lindström & Tuomilehto*. Risk score ≥ 12
- Exclusion criteria:
  - Diagnosed T2D; cancer; recent MI or stroke; or mental disorder or substance abuse interfering with group activities

# Study timeline

<table>
<thead>
<tr>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
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<td>L3</td>
<td>L4</td>
<td></td>
</tr>
<tr>
<td>A1</td>
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</tr>
<tr>
<td>C1</td>
<td>C2</td>
<td>C3</td>
<td>C4</td>
<td>C5</td>
</tr>
</tbody>
</table>

- **F** = Focus group interview
- Q1–Q5 = Questionnaires
- L1–L4 = Lab tests
- C1–C6 = Counselling sessions
- A1–A4 = Anthropometric measurements
Selected publications


