



DAFNE

Dose Adjustment For Normal Eating

**Changing the Way People Manage
Type 1 Diabetes**

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DAFNE

- How DAFNE came about
- The evidence
- What does it involve?
- Implications for dietitians
- Where is the project now?

Collaboration between



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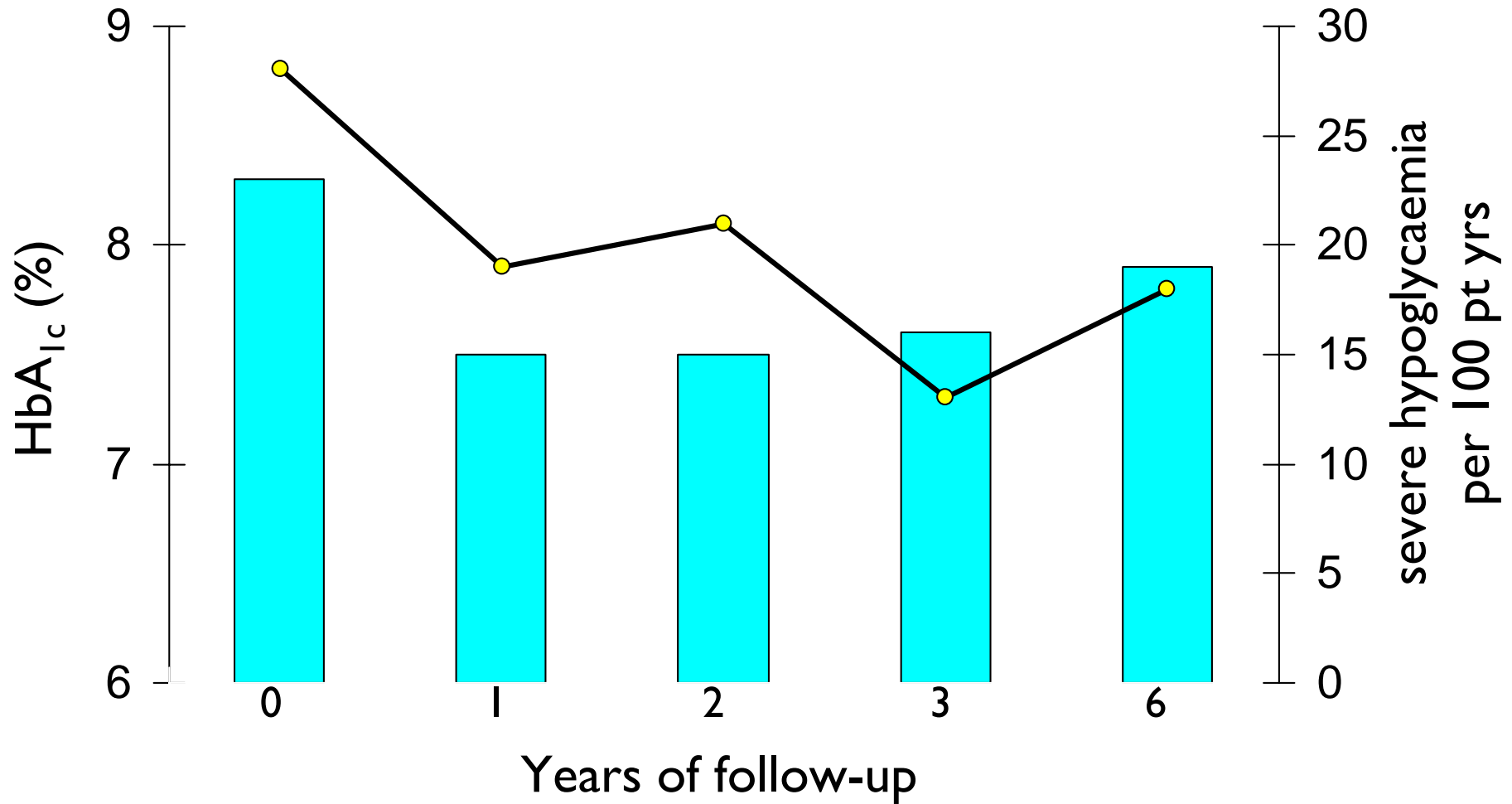


The charity for people with diabetes
Registered charity no. 215199

Current UK outcomes

- Biomedical:
 - Control is generally poor
 - Few patients enabled to take control of their diabetes
 - A belief that tightening control increases the risk of severe hypoglycaemia
- Quality of life:
 - ADDQoL reveals a profoundly negative impact of diabetes on quality of life

Outcomes in Düsseldorf



What Do They Do In Düsseldorf?

- Learn the skills to match insulin to food allowing freedom to eat whatever, whenever
 - 5-day programme
 - Adult education in a group setting
 - Emphasis on building skills, confidence and appropriate independence
- Participants taught how to adjust insulin to suit lifestyle rather than adjusting lifestyle to match insulin

The DAFNE Trial

Could the Düsseldorf course be transferred to the UK?

- 3 clinical centres
 - Northumbria, Sheffield, King's College London
- 169 volunteers – randomised to 2 groups in each centre
 - Immediate DAFNE – course: Feb to May 2000
 - Delayed DAFNE – usual treatment, then course: Sept to Dec 2000
- Blood tests and questionnaires
 - Beginning, 6 months, 12 months

Overall Findings

- HbA_{1c}: improved for up to one year
- Severe hypos: no change
- Weight, lipids, BP: no change
- Major and lasting improvements in:
 - Treatment satisfaction
 - General well-being
 - Quality of life

Ref: BMJ 2002 vol 325:746

The DAFNE Philosophy

Type I diabetes is an insulin deficiency disorder

In order to manage blood glucose people need to:

- Anticipate the effect of lifestyle on blood glucose
 - (food, activity, other factors)
- Adjust their insulin to match their lifestyle

**Insulin treats Type I diabetes
Lifestyle does not**

DAFNE Courses

- For 6-8 people with Type 1 diabetes
- 2 educators - nurse and dietitian
- Monday to Friday
 - Need to attend all 5 days

DAFNE Course Programme

- Day 1 What is diabetes, nutrition, blood sugar monitoring
- Day 2 Insulin action and regimen, nutrition, insulin adjustment
- Day 3 Hypoglycaemia, nutrition, physical activity
- Day 4 Nutrition, complications, questions with doctor
- Day 5 Sick-day rules, (pregnancy), evaluation and follow-up

Reflective insulin dose adjustment x 3 per day

DAFNE is Skills Training

- Essential training in balancing the glycaemic effects of:
 - Food
 - Insulin
 - Physical activity
 - Other factors
- Training about food focuses mainly on CHO
 - Composition, estimation of CHO content of foods, glycaemic index
 - To enable food to be interpreted as an insulin dose

Nutrition Sessions

- Identifying CHO in food and drink
- CHO estimation:
 - Glycaemic index
 - Eating out and recipes, labels
 - Alcohol
 - Healthy eating/weight management
- Practical sessions using:
 - Food models, food photographs and food packets
 - Meals and snacks eaten during the week

Carbohydrate Estimation

1 carbohydrate portion (CP) = 10g CHO

- Check blood sugar
- Choose what you want to eat
- Estimate CPs
- Work out insulin dose
- Inject and eat

DAFNE Approach

- Insulin regime:
 - Twice daily intermediate insulin
 - Soluble/analogue with each meal or snack
- Blood glucose monitoring:
 - Before each injection
- Insulin regime:
 - 1-3 units: 1 CP at breakfast
 - 1-2 units: 1 CP at other meals

CHO Counting

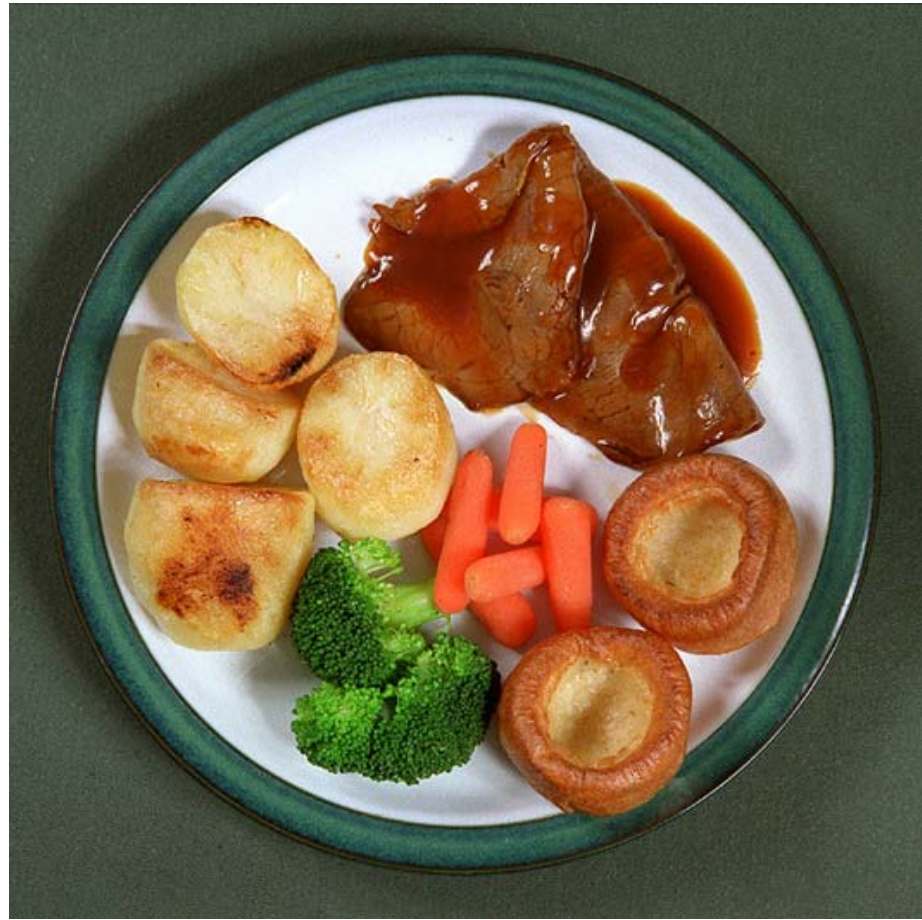
Used to increase flexibility not restrict or regulate CHO

Free to choose:

- When to eat
- How much or how little to eat
- Type of CHO – starch versus sugar
- Able to miss meals/snacks

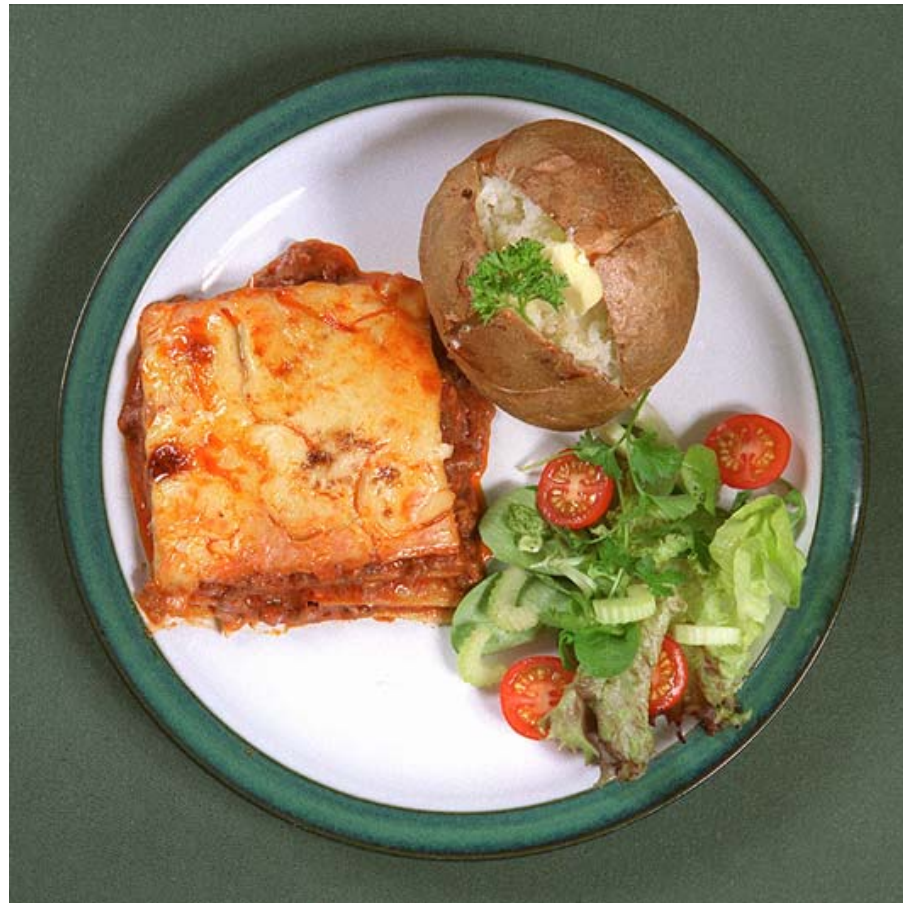
DAFNE Dose Adjustment

5 CPs



DAFNE Dose Adjustment

9 CPs



DAFNE Dose Adjustment

0 CPs



Blood Glucose Targets

- 5.5 – 7.7 mmol/l before breakfast
- 4.5 – 7.7 mmol/l before other meals
- 6.5 – 8.0 mmol/l before bed

- HbA_{1c} 6 - 7%

- Individual negotiation depending on current control, complications, hypos etc

DAFNE Diary

Date	Time	06.30	12.00	15.45	18.00		23.30	Comments
	CP	4	3	2	13			
	BG	6.7	7.4	5.3	4.6		7.5	
	QA	12	5	2	13			
	BI	12					12	
Date	Time	09.30			16.00		22.00	Comments
	CP	6			9		4	
	BG	6.9			7.7		8.0	
	QA	18			9		4	
	BI	12					12	

Participants' Comments

- *'...ability to eat with the family whenever I want to (pizza after cinema).'*
- *'... taken away the guilt...'*
- *'I can now miss meals or eat later.....'*
- *'For the first time in 25 years I was able to holiday abroad with a sense of freedom.'*
- *'I am now doing a new job which ... I could never have managed before the DAFNE Trial.'*
- *'Spread the word. It really can make a difference!'*
- *'Thanks! Why didn't someone think of this earlier!'*

In Summary

- Dietary freedom is key to DAFNE success motivating people to continue with intensified insulin therapy
- DAFNE brings both dietary freedom and benefits of:
 - Improved BG control with no significant increase in severe hypos
 - Improvements in QoL, well-being and treatment satisfaction
 - Greater autonomy and increased confidence
- Only if you have the essential skills for successful flexible insulin dose adjustment which includes CHO estimation
- DAFNE involves a shift in focus back to CHO

Implications for Dietitians

- Carbohydrate portions?
- The role of healthy eating?
- Professional issues?

Carbohydrate Portions

Pros

- DAFNE teaches people the skill of carbohydrate estimation
- DAFNE uses carbohydrate estimation to allow freedom to eat
- Carbohydrate estimation gives people a framework to calculate their insulin dose
- Insulin and carbohydrate matching improves control without an increase in severe hypoglycaemia

Cons

- Previous approaches restricted carbohydrate
- Previous research showed HbA_{1c} just as bad with or without CHO counting
- Evidence demonstrated differences between CHO estimated v's actually eaten
- Glycaemic index means not all CHO has same effect on blood glucose

Healthy Eating

Pros

- Still a key message in Type 2
- Still relevant to individuals who are keen to lose weight or high cardiovascular risk

Cons

- Is there any clear evidence linking healthy eating and vascular disease in Type 1 diabetes?
- Eating healthily does not help people with Type 1 diabetes predict their blood glucose
- **DAFNE graduates have the same choices for healthy eating as people without diabetes**

Professional Issues

- Can all dietitians count carbohydrate?
- What about student training?
- National dietary recommendations for diabetes?

Where is DAFNE Now?

- Trial completed end 2000
- 2002/2003
 - Trained 7 new centres
- 2004
 - Training 2 additional centres
 - Set up DAFNE database
 - Audit tool – yearly data collection, all DAFNE patients

Quality Assurance

- Peer review every 3 years by another centre
- DAFNE database
 - Each centre looks at own data
 - Compare data between centres

How to become a DAFNE centre

Website:

www.dafne.uk.com

Email:

dafne@northumbria-healthcare.nhs.uk