

Developing Dietetic Resources for Children and Young People with Type 2 Diabetes

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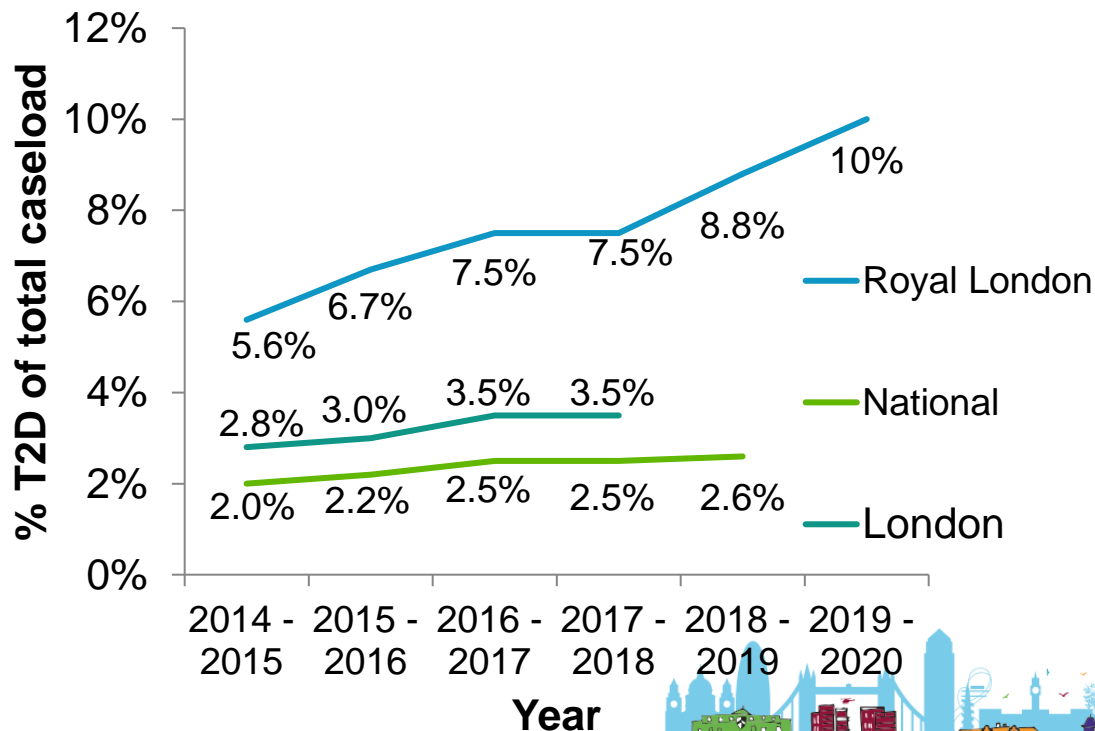


Contents

- The population in East London
- Our QI project and QI tools
- An AHP assessment
- Dietary interventions / options
- Exercise



Type 2 Diabetes at Royal London



An obese population!

10% more children are obese in
Tower Hamlets than Nationally

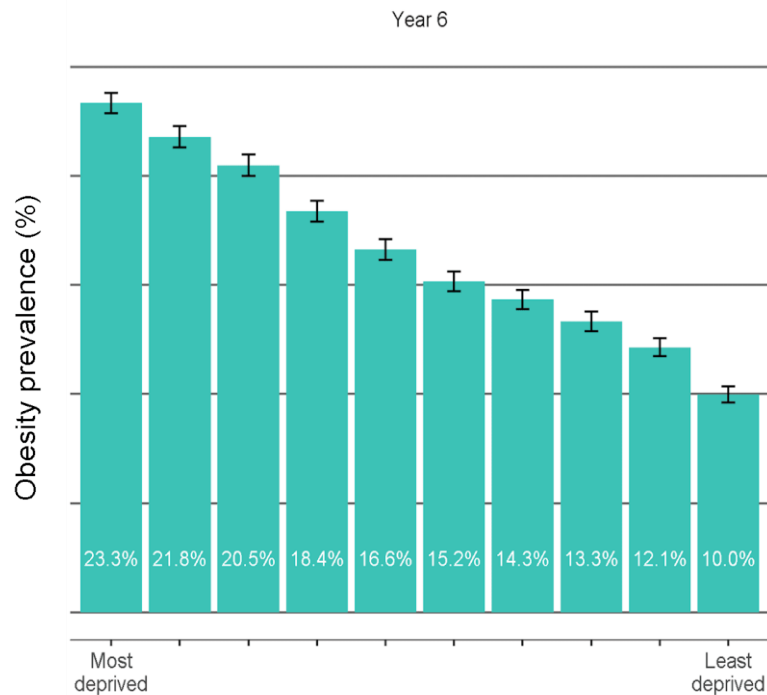
Compared with benchmark: Better Similar Worse Not compared

Year 6: Prevalence of overweight (including obesity) 2018/19

Area	Recent Trend	Count	Value	
England	↑	205,923	34.3	
London region	→	35,557	37.9	
Barking and Dagenham	→	1,634	44.9	
Newham	→	1,978	42.7	
Enfield	→	1,885	42.6	
Brent	↑	1,605	41.7	
Tower Hamlets	→	1,278	41.5	
Greenwich	→	1,392	41.2	
Hackney	→	1,014	40.2*	
Redbridge	→	1,512	39.9	
Southwark	↓	1,185	39.7	
Hounslow	→	1,294	38.9	
Ealing	→	1,609	38.7	
Hillingdon	↑	1,461	38.7	
Croydon	→	1,751	38.6	
Haringey	→	1,038	38.4	
Islington	→	653	38.3	
Waltham Forest	→	1,203	38.0	
Westminster	→	437	38.0	
Bexley	→	1,184	37.9	
Lewisham	→	1,217	37.3	
Harrow	→	1,051	36.7	
Lambeth	↓	1,020	36.5	
Camden	→	523	36.4	
Havering	→	1,070	36.1	
Hammersmith and Fulham	→	441	35.8	
Merton	→	791	35.6	
Kensington and Chelsea	→	234	35.3	
Sutton	↑	871	35.0	
Barnet	→	1,423	34.3	
Wandsworth	→	761	32.9	
Bromley	→	1,085	30.7	
Kingston upon Thames	→	506	27.4	
Richmond upon Thames	→	451	22.6	
City of London	-	-	*	



A Deprived Population

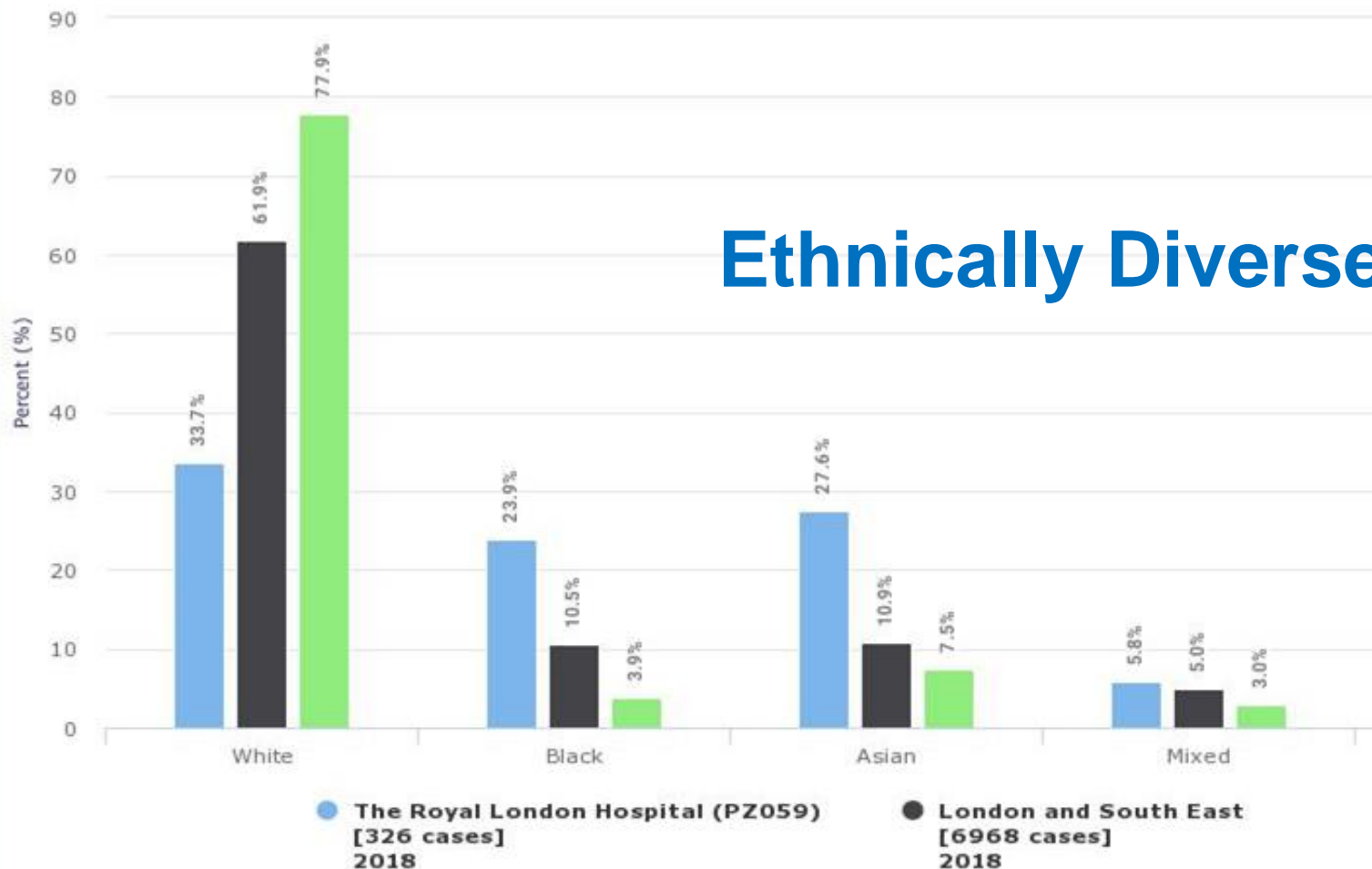


Obesity prevalence by regional deprivation and age

Child obesity: BMI greater than or equal to the 95th centile of the UK90 growth reference. Source: National Child Measurement Programme 2014/15-2016/17



Ethnically Diverse!



A complex condition

Obesity harms children and young people



Emotional and
behavioural

- Stigmatisation
- bullying
- low self-esteem



School absence



- High cholesterol
- high blood pressure
- pre-diabetes
- bone & joint problems
- breathing difficulties



Increased risk of
becoming overweight
adults

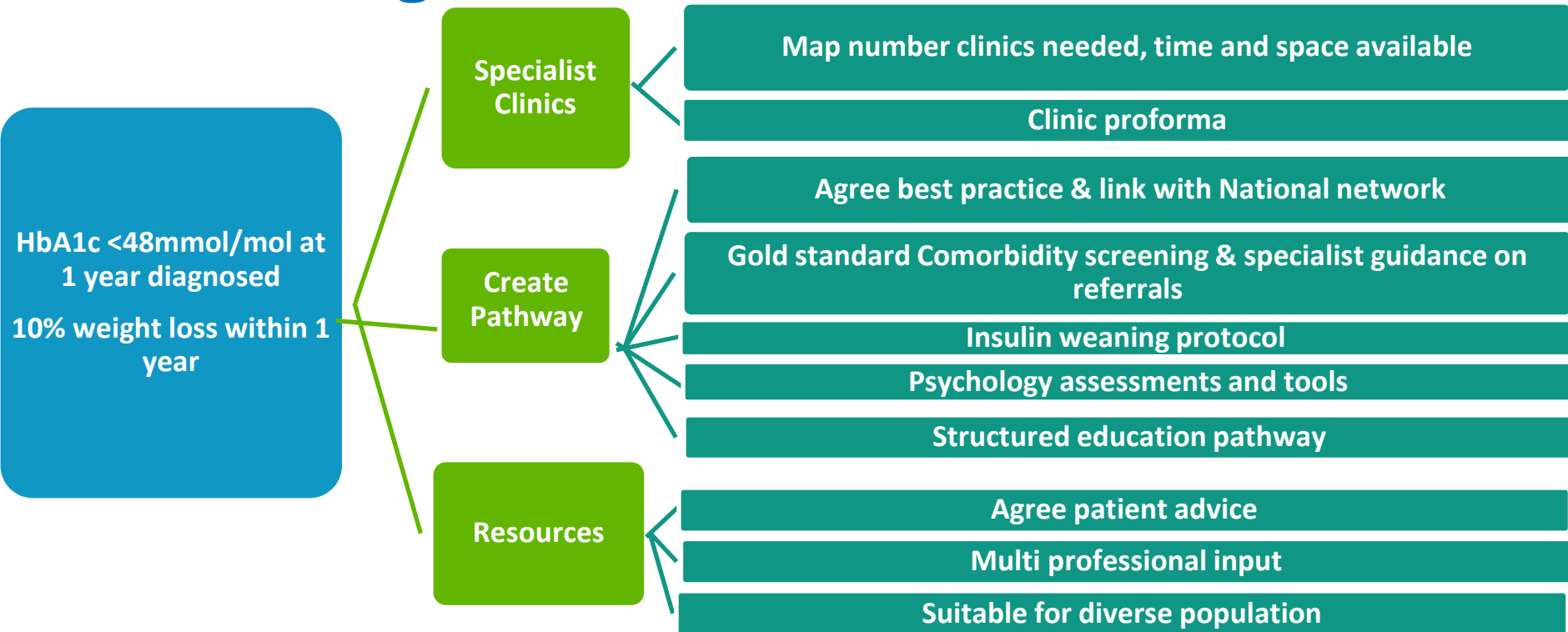
Risk of ill-health and
premature mortality in
adult life

Type 2 Diabetes Specific Stats

- 45.5% require Psych/ CAMHs support. (NPDA 2018-2019)
- Rapid development of complications and CV risk (Barrett et al, 2019)



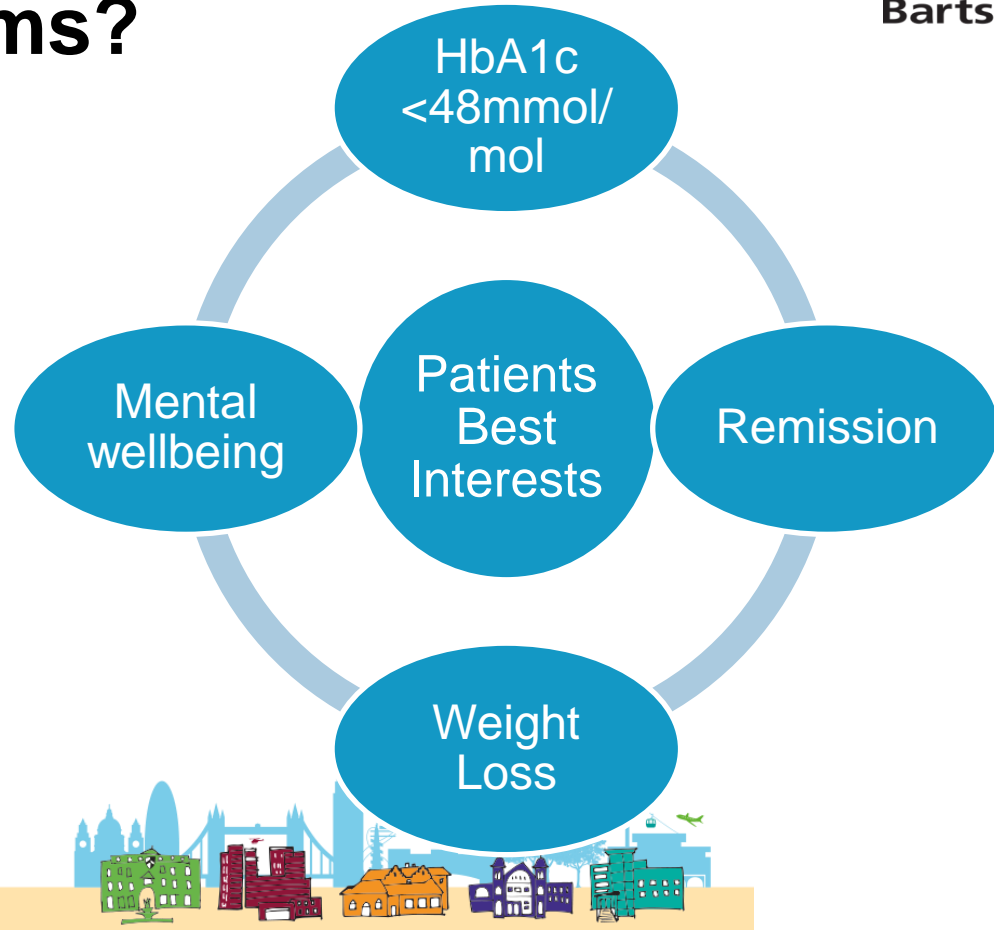
Driver Diagram



What are *our* Aims?

What is a realistic weight loss:

- Very little evidence in CYP
- 7% weight loss shown to improve CV risk factors
- 5-10% is reasonable & I have seen good results
- Await ACDC guidelines



Dietitian Assessment

Clinical

- Weight/ BMI/ waist circumference
- Weight Hx
- Family weight Hx
- Lipids
- BP

Comorbidities

- NAFLD
- Musculoskeletal
- Sleep apnoea

Diet History

- Current & previous dieting
- Food frequency
- Eating habits questionnaire

Environmental

- Daily Routines
- Family support
- Culture
- Economic
- Housing
- Physical environment

Paediatric Inventory of Distress
(Assesses depression and anxiety)

Individual

Knowledge
- scaling questions
Life goals
Mental health
Motivation
Body image/self-esteem
Sleeping patterns
Behavioural issues
Emotional eating



What diet works for significant, sustained, weight loss?



Just one!

The one CYP / families can keep to!



Reference

Johnston Et al, 2014.
Comparison of weight loss
among named diet
programmes in overweight
and obese adults: a meta-
analysis



meal time

cut back
fat

me size
meals

get going

every day

breakfast 4 life

up & about
change
4 life

snack check

5 a day

fiber
Swap

games 4 life

fitness 4 life

sugar
swaps

Eat Well Move more Live longer

Carb Prescriptions

Work out
energy require
ments

Split this
through the
day

Subtract 600-
1000kcal

40-50% of
energy as
carbs

Total carbs
minus carbs for
fruit and dairy

Carbs from fruit
and dairy as
per BDA
portion guide

→ Energy

Mifflin St-Joer / Schofield (over estimates
600 - 1000kcal deficit
35-40% energy as carbs,

→ Starchy Carbs

Minimum 130g per day

→ Dairy (30g carbs)

3 portions per day

→ Fruit (60g carbs)

2-4 portions per day

How many calories does my
body need per day?

2300kcal

If you eat this amount your weight
would remain the same

How many calories should I
eat to reduce my weight?

1400- 1700
175- 210g total
Carbs

If you eat this amount you should lose
0.5-1kg (1-2lb) per week

How many grams of starchy
carbs should I eat per day?

130 – 150g per day

This will support your weight loss and
good blood glucose levels
Divide this between your meals,
Breakfast = 40 -45g carbs
Lunch = 40-45g carbs
Dinner = 50-60g carbs

Snack

How many carbs from Dairy
should I have per day?

30g carbs from
dairy

These foods are important for calcium
but do contain carbs
Divided this over 3 portions
e.g. 1 yoghurt and 200mls milk
OR 2 x yoghurt and 100ml milk.

How many carbs should I
have from fruit per day?

30g carbs from
fruit

These foods are important for vitamins
and fibre but do contain carbs
This should be in the form of 2 forms
of fresh fruit per day with meals



Personalising Prescriptions

As with all diets it is important to personalise

→ What does family currently eat?

Can current dietary pattern be adapted
 Swops

→ What are they going to find most challenging?

Focus on the easy changes first
 Does family need Scales
 Handy measures

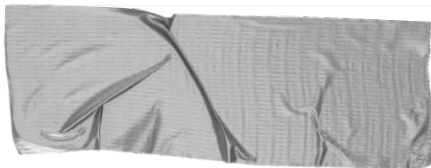
→ Consider

Who does the shopping?
 Who cooks?
 Who else is willing / able to follow plan?

Example Day

Breakfast	2 x wheatabix with 250mls Milk OR 40g Wheetos + 150mls milk	50g oats +milk PLUS Apple + cinnamon / banana + spoon hot chocolate + Sweetener. Leave in fridge overnight
Lunch	Chicken Sandwich = 56g carbs	1 Cup of rice / pasta / couscous = 50g carbs Grilled chicken / smoked mackerel + salad / roasted vegetables
Snack	Grapes, Apple, oranges = 2 units, Banana = 4 units, Kiwi, plum, nectarine = 1units Petti Filou x 2 = 2units, 125g yoghurt = 2units Milk 150ml = 7units	
Evening meal	1 Cup of rice (50g carbs) OR Chappati x 1 + fish / meat curry + dhal or veg curry	100g Oven chips (30g carbs) 3 chicken nuggets (10g carbs) Broccoli AND / OR sweetcorn (40g - 11gcarbs) OR Peas (40g - 4g) Or baked beans (80g =12g carbs)
Snack	Sugar free Jelly, Sugar Free ice Lolly,	





Low Carb Diets

→ **BDA** : 50-130g per day

ADA:

Very low Ketogenic 20-50g/day

Low carbs <30g/day (<26% of energy /day)

Moderate carb: 26-45% energy /day

High carb >45% energy/day

Risks

Reduced fibre intake (gut and CVD risk)

Leaching of calcium into urine and effect on bone development

Managing of ketone levels unknown

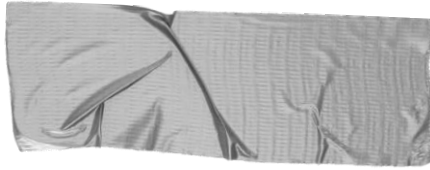
No evidence of long term impact (CVD risk)

Psychological impact of restrictive diet

Type 2 National Network Group position

- Ideal amount of carbs is unclear for CYP with T2DM
- There is not enough evidence for Low carbs < 130g in CYP with T2DM
- Moderate carbs diet (26-45% energy) recommended
- Prescriptive meal plans and recipes
- Consideration of cultural beliefs and cooking practices





Meal Replacements

- No evidence or research on the use in CYP
- Total meal Replacements :
Check whether energy deficit is sustainable
- Total meal Replacement Vs Partial
- Currently we only recommend partial meal placement with 600 – 1000kcal deficit
- Calorie controlled ready meals



Meal plans

Monday

Breakfast



Porridge + tablespoon raisins

Lunch / Dinner



Milkshake + popcorn

Dinner / school meal

500kcal Dinner

Have this meal at school or for dinner

Free Snack



MEAL Vegetable curry with lentil dhal and rice, and orange juice

12-18 year olds

12-18 year olds	
	500 kcal
Vegetable curry	200g
Lentil dhal	80g
Rice	80g
Orange juice	150ml

Vegetable curry
This recipe makes 4 portions of about 200g.

- 1 tablespoon vegetable oil
- 1 medium onion, peeled and sliced
- 2 teaspoons curry powder
- 1 clove garlic, finely chopped
- 200ml water
- 2 medium carrots, peeled and sliced
- 1 small head of cauliflower, frozen only
- 1 large potato, peeled and cubed
- 1 small (200g) can sweetcorn, drained
- 1 small (150g) carton low fat natural yogurt

- Heat the oil in a small saucepan and cook the onion until softened and beginning to brown.
- Add the curry powder and garlic and cook for 1 minute.
- Add the water.
- Add the carrots, cauliflower, potato and sweetcorn and bring to the boil.
- Reduce the heat, cover and simmer for 15 minutes.
- Remove from the heat and stir in the yogurt, then return the pan to a low heat and cook gently for 2 minutes.

Lentil dhal
This recipe makes 6 portions of about 80g.

- 150g split red lentils
- 1 tablespoon vegetable oil
- 1 teaspoon cumin seeds
- 1/2 small onion, sliced
- 1 clove garlic, finely chopped
- 1 teaspoon ground ginger
- 1 teaspoon mild chili powder
- 1 teaspoon ground turmeric
- 2 small tomatoes, sliced
- 200ml water

- Soak the lentils in water until tender.
- Heat the vegetable oil in a large pan and fry the onion, garlic, ginger, chili powder and turmeric and fry for several minutes until the onions soften.
- Add the soaked lentils to the pan, along with the sliced tomatoes and the water, and cook for 1-2 hours.

www.cwt-chew.org.uk



Spicy Chicken, red pepper & tomato bake



ONLY 588 calories **2**

Preparation time: 15 minutes
Cooking time: 55 minutes
Serves: 4

Ingredients
600g chicken thighs with skin on
2 tbsp. olive oil
3 medium red onions, cut into thick wedges
800g new potatoes, cut into thick slices
2 red peppers, deseeded and cut into thick slices
400g cherry tomatoes
2 garlic cloves, crushed
1 tsp. cumin
1 tsp. smoked paprika
Pinch of dried chilli flakes (optional)
1 tsp. fennel seeds slightly crushed
Zest and juice 1 lemon
To serve
180g 0% fat Greek yogurt
Small handful parsley or coriander chopped

Directions
1) Preheat the oven to 220C (200C Fan).
2) Mix together the garlic, chilli flakes, spices, lemon zest, juice and olive oil in a small bowl.
3) Place the onions and potatoes, in 2 large ovenproof dishes, pour over the spice mixture and rub in. Place in the oven and roast for 25 minutes.
4) Remove from the oven and add the chicken thighs and the peppers. Season with salt & pepper and put back in the oven for another 30 minutes until the chicken is cooked through. Add the cherry tomatoes for the last 10 minutes of the cooking time.
5) Serve in bowls with a dollop of yogurt and a sprinkling of coriander.

Gluten free- omega 3.

Nutritional Information per Serving	
kJ/kcal	2460 / 588
Protein	38g
Fat	28g
Carbohydrate	48g

→ Fruit

2 - 3 portions per day

→ School

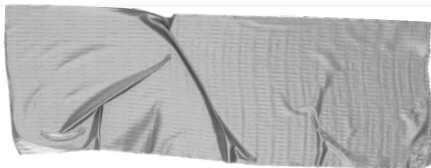
Discuss school meal Vs evening meal

Support

Is there someone else also following

→ Consistency

Some families have done 5 days of the week with success



Weight Loss Groups

- **Weight watchers:** 13-18year olds can attend Wellness Workshops, referred by their medical professional or doctor, and accompanied by an adult. Currently, teenagers are not eligible to join our Digital plan.
- **Slimming world:** Children aged 11-15 can join a Slimming World group for free if they're accompanied by a parent/guardian or family member who has main responsibility for their meals/eating habits at home.
- **Our experience:** Poor attendance, great feedback,



Very Low Calorie Diets

- **NICE** – greater weight loss over 3-6 months. NICE does not recommend long term for adults, 12 weeks only
- **DIRECT study**
- **Not currently in CYP.**
- **Study planned led by Nottingham team**



Motivation!

When people are diagnosed with Type 2 Diabetes they often have to make a few changes to their lifestyles at the same time. Making changes can be tough for everyone. Sometimes it's difficult to stay MOTIVATED.

To stay motivated when making difficult changes we need two things:

- 1) Confidence!
- 2) Wanting to change



What changes would you like to make?

.....

.....

.....



Thinking about the top change you've put above...

How much do you want to make this change? (circle a number)

1 2 3 4 5 6 7 8 9 10



How confident do you feel that you can make this change? (circle a number)

1 2 3 4 5 6 7 8 9 10



How much of you does not want to change? (shade area in circle)



What might help you to feel one or two points more confident?

.....



When we make changes most people have mixed feelings about making changes. Below write down three of the good things that might come from making your change and three possible downsides to making the change.



Advantages

1.
2.
3.



Disadvantages

1.
2.
3.



We all need help from **other people** when we're trying to make changes or aim for a goal. It's good to have a team that can help you make these changes.



Thinking about the people in your life who can be on your support team?

.....

.....

.....



Is there anyone else who might be able to make these changes with you?

.....

.....

.....



When you've decided what change you want to make the next step is to set yourself a goal. Remember to make SMART goals! This stands for;

Specific
Measurable
Achievable
Realistic
Time-based

Some examples of SMART goals could be:

- To eat a piece of fruit with breakfast everyday for the next week.
- To test your blood glucose everyday when you get up in the morning for the next 7 days.
- To go for a 30 minute walk three times in the next week



Physical activity is the best medicine you will ever prescribe!




Herbst, 2015.

Impact of regular physical activity on BG control and CV risk factors in CYPP T2DM. Pediatr Diabetes.

55% reported to regular physical activity

Twice weekly Activity = A1c 0.8% lower, lower BMI, higher HDL Cholesterol.

No changes noted in total cholesterol or pharmacological treatment



Exercise alone will not lead to weight loss

- Unless over 1 hour daily



Chenget al; 2014

2361 adolescents

Physical activity of father influences sons, and mother influence daughters.

Physical activity of friends was directly associated with activity of adolescents

Dietitians Role in Educating

Questionnaire sent to 166 GP in the East midlands. ½ underestimated PA guidelines. 90% felt discussing PA was part of their role but discussed PA about ⅓ of the time compared with weight management and smoking

Education programme in Oxfordshire on ↑ PA in those >5 years with diabetes.

Lack of knowledge between health professionals on the risk reduction benefits of exercise.

(Mathews, 2017, BMC Health Serv Res.)

Questionnaire of 177 medical students,

- 40% reported awareness of guidelines
- 68% were able to accurately identify the recommended levels for adults VS 97% accuracy for alcohol guidelines.
- 52% felt adequately trained to give exercises advice



Physical activity for early years (birth – 5 years)

Active children are healthy, happy,
school ready and sleep better



BUILDS
RELATIONSHIPS
& SOCIAL SKILLS



MAINTAINS
HEALTH &
WEIGHT



CONTRIBUTES TO
BRAIN DEVELOPMENT
& LEARNING



IMPROVES
SLEEP



DEVELOPS
MUSCLES
& BONES



ENCOURAGES
MOVEMENT
& CO-ORDINATION

Every movement counts



PLAYGROUND



JUMP



CLIMB



MESSY PLAY



THROW/CATCH



SKIP



OBJECT PLAY



DANCE



PLAY



PLAY



TUMMY TIME



SWIM



WALK



SCOOT



BIKE

Move more. Sit less. Play together

Physical activity for children and young people (5 – 18 Years)



BUILDS
CONFIDENCE &
SOCIAL SKILLS



DEVELOPS
CO-ORDINATION



IMPROVES
CONCENTRATION
& LEARNING



MAINTAINS
HEALTHY
WEIGHT



STRENGTHENS
MUSCLES
& BONES



IMPROVES
SLEEP



IMPROVES
HEALTH
& FITNESS



MAKES
YOU FEEL
GOOD

Be physically active

Spread activity
throughout
the day

All activities
should make you
breathe faster
& feel warmer



PLAY



RUN/WALK



BIKE



ACTIVE TRAVEL



SWIM



SKATE



SPORT



PE



SKIP



CLIMB

Include muscle
and bone
strengthening
activities
**3 TIMES
PER
WEEK**



WORKOUT



DANCE

Sit less



LOUNGING

Move more

Find ways to help all children and young people accumulate
at least 60 minutes of physical activity everyday



Resources

Short term physical activity interventions will never work nor be financially viable in the NHS. (opinion)

We need to find local, convenient activity that is acceptable for our families

- Google maps
- Local parks / Youth centres / gyms / gardens
- NHS exercise videos, NHS Fitness Studio: nhs.uk/conditions/nhs-fitness-studio
- Free exercise Ideas: nhs.uk/live-well/exercise/free-fitness-ideas/
- Couch to 5K
- Park Run: parkrun.org.uk
- The conservation Volunteers (Green gyms): tcv.org.uk
- Our Parks, Free outdoor fitness classes: ourparks.org.uk
- Change for Life activities: nhs.uk/change4life/activities



Thank you!

Questions?

