Disclaimer

These are not validated questions.

They have been created to enhance your learning and provide practice reading and answering multiple choice questions.

Insulin Adjustment

Connie

- 45 year old woman, lives with her husband, 2 children
- Travels as a part of her job selling tile
- Struggled with weight all her life, goes on and off sticking to a routine
- Her husband recently lost his job so they no longer have drug coverage
- Target Blood Sugar :5-7
- Metformin 1 gm bid
- D/C Victoza 1.8 as she can no longer afford
- Diamicron MR 120 mg
- She is frustrated with the numbers now that she has stopped Victoza.
- She started on Mix 25 as she did not want to take insulin at work

Connie

Mix 25:   25 units   am
10 units pm (before dinner)

	FBS	Pc B	Ac L	Pc L	D	pc	HS
Sun	8.7		7.2		8.0	12.4	
Mon	6.9				8.1		11.6
Tues	7.5		7.8		8.6	11.7	
Wed	8.2		12.6		7.2		10.7
Thur	7.9				9.4	14.6	
Fri	7.2		7.9		7.9		11.9

Connie

What would you adjust next?
a) Take another shot of insulin at lunchtime
b) Increase the morning dose
c) Increase the dinner dose
d) Increase the dinner dose and decrease the morning dose

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a) Take another shot of insulin at lunchtime
b) Increase the morning dose
✔ **c) Increase the dinner dose**
d) Increase the dinner dose and decrease the morning dose

Heather

Type 2 newly diagnosed post MI at the age of 39

She is a fitness instructor and can't understand how she could have had a heart attack when she exercises every day.

Her mother died at the age of 45 of an MI. Heather smokes 1 pack a day x 25 years.

She refuses to take insulin more than 2 x day

She was started on   30/70   24 units/ 24 units at dinner

Heather

30/70   24 units am / 24 units at dinner

	FBS	Ac L	D	HS
Sun	9.2		6.1	9.2
Mon	8.7	4.9*	3.2*	11.5
Tues	9.8		4.7*	6.4
Wed	11.3		5.3*	7.3
Thur	7.4	5.8*	4.9*	4.7
Fri	10.5		4.1*	13.7

*reports feeling unwell

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Heather

What would you do?

a) Leave the insulin unchanged and add an afternoon snack

b) Increase the evening dose

c) Decrease the evening dose

d) Decrease the morning dose

Heather

What would you do?

a) Leave the insulin unchanged and add an afternoon snack

b) Increase the evening dose

c) Decrease the evening dose

✔ **d) Decrease the morning dose**

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Heather

Heather then tells you she doesn't eat lunch and only eats breakfast and dinner.

What is the most appropriate suggestion?

a) Tell her to smarten up and eat lunch

b) Ask about how much she is exercising

c) Review treatment of hypoglycemia

d) Ask if she has quit smoking

Heather

Heather then tells you she doesn't eat lunch and only eats breakfast and dinner.

What is the most appropriate suggestion?

a) Tell her to smarten up and eat lunch

b) Ask about how much she is exercising

✔ **c) Review treatment of hypoglycemia**

d) Ask if she has quit smoking

Jeff

Age 61 and has limited finances

He lives in a boarding house and has cooking facilities

A1c 9.9 %

Metformin 1 gm bid, Glyburide 10 mg bid

His Dr. recommends he start NPH 20 units at bedtime, which he did reluctantly.

Based on Jeff's medications, how many times per day should he test his blood glucose according to the CPG ?

a) Once per day

b) Before each meal

c) Fasting only

d) Fasting and altering 2 hr after various meals

Jeff

Based on Jeff's medications, how many times per day should he test his blood glucose according to the CPG ?

✔ a) Once per day

b) Before each meal

c) Fasting only

d) Fasting and altering 2 hr after various meals

Jeff

He agrees to test twice daily.

When would you want him to test?

a) Fasting and before bed

b) Fasting and randomly through the day

c) Fasting only

d) Fasting and altering 2 hr after various meals

Jeff

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When would you want him to test?

a) Fasting and before bed

b) Fasting and randomly through the day

c) Fasting only

✓ d) Fasting and altering 2 hr after various meals

Jeff

Jeff gets a new job as a truck driver.

According to the driving guidelines for commercial drivers what would be the most important information to share with Jeff ?

a) He should test within 30 minutes of starting to drive

b) He should have simple sugar/snacks within reach while driving

c) He should test every 4 hours while on the road

d) All of the above

Jeff

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According to the driving guidelines for commercial drivers what would be the most important information to share with Jeff ?

a) He should test within 30 minutes of starting to drive

b) He should have simple sugar/snacks within reach while driving

c) He should test every 4 hours while on the road

✔ d) All of the above

Jeff

20 units of NPH at bedtime

	FBS	pc	Ac L	Pc	Ac D	pc	HS
Sun	10.9		12.3				
Mon	9.2						13.6
Tues	8.7				17.4		11.8
Wed					17.6	22.0	
Thur	13.9			15.2			
Fri	10.1				15.6		

Jeff

Based on the previous blood glucose readings what would the next step would be:
a) Increase the NPH at bedtime
b) Switch the NPH to morning as his evening sugars are higher
c) Add an additional dose of NPH in the morning
d) Have him test just fasting as the rest of the numbers are discouraging

Jeff

Based on the previous blood glucose readings what would the next step would be:

a) Increase the NPH at bedtime

b) Switch the NPH to morning as his evening sugars are higher

✔ c) Add an additional dose of NPH in the morning

d) Have him test just fasting as the rest of the numbers are discouraging

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Sarah

Sarah is a 75 year old woman living in a granny cottage next to her son's home

Her son comes to give her insulin in the morning before he leaves for work. She eats dinner with them every night so her son can give the insulin. The grandchildren comment that granny is 'always confused and out of it' when they come home from school. She returns to normal when she has cookies and juice with them.

Sarah is on 40 units of 30/70 in the morning and 38 units 30/70 before dinner.

Fasting Blood Sugars are 6.9-8.3 mmol/L A1c 5.9%

Sarah

30/70 40 units in Am, 38 units at dinner

	FBS	pc	Ac L	Pc L	Ac D	Pc D	HS
Sun	6.1			4.7	12.3		
Mon	7.1						9.7
Tues	5.3				11.4		
Wed	6.1				14.3		8.1
Thur	4.9		4.9				5.1
Fri	10.2		3.2				

Sarah

What do you expect is happening here?

a) Sarah has the early stages of Alzheimer's disease which impacts her blood glucose

b) The Somgyi effect

c) Sarah is sneaking treats in the day when her family is away

d) Sarah has undiagnosed cancer

Paul

Age 45, works in a physical job doing landscaping

He takes Toronto 16, NPH 30 in the am; Toronto 10 at dinner; NPH 30 at HS

He doesn't have benefits

He has started drinking Juice at work to make it to lunch.

Paul

Toronto 16, NPH 30 in the am; Toronto 10 at dinner; NPH 30 at HS

	FBS	pc	ac L	Pc L	ac D	Pc D	HS
Sun	7.1		4.2	10.9	7.9	7.6	
Mon	6.4	4.0	4.6	11.6	9.5	8.1	
Tues	6.3	5.1	6.1	11.8	9.3	10.6	
Wed	5.6	5.2	3.8	3.9	8.2	7.7	
Thur	5.3	5.5	4.0	8.2	9.2	7.5	
Fri	6.2	3.4	5.2	7.3	8.6	8.6	
Sat	7.4	4.3	4.7	7.9	6.9		

Paul

What would you change?
a) Decrease NPH in the morning
b) Decrease Toronto in the morning
c) Increase NPH in the Morning
d) Increase Toronto at dinner
e) Decrease NPH at bedtime

What would you change?
a) Decrease NPH in the morning
✔ b) Decrease Toronto in the morning
c) Increase NPH in the Morning
d) Increase Toronto at dinner
e) Decrease NPH at bedtime

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Irene

Age 70, lives with her husband who does all the cooking

BMI 35

Metformin 1 gm bid,

Lantus 160 units at bedtime,

Their concerns "sugars are all over the map"

The family Dr had told them they could play around with the insulin a little to figure it out

Irene

	FBS	Ac L	D	HS	Lantus Dose
Sun	3.6		9.2	14.4	150 u
Mon	3.7	10.6		10.7	120 u
Tues	5.9		8.7		120 u
Wed	6.8			9.6	120 u
Thur	7.9			8.2	100 u
Fri	14.7	16.1	13.6	18.7	150 u
Sat	8.5		10.3	14.6	150 u
Sun	4.1				

Irene

Your first recommendation would be:

a) Stop the insulin it isn't working

b) Add a shot of Lantus in the morning

c) Decrease the evening dose

d) Use the smallest dose (recently used) Lantus consistently

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Irene

Your first recommendation would be:

a) Stop the insulin it isn't working

b) Add a shot of Lantus in the morning

c) Decrease the evening dose

✔ d) Use the smallest dose (recently used) Lantus consistently

Lynda

48 year old female

Type 1 Diabetes X 40 years

No drug coverage

A1c: 5.4 %

Novolin NPH QAM 12 units and QHS 16 units

Novorapid Breakfast 6, Lunch 5, Supper 6

Lynda

- **Novolin NPH QAM 12 units and QHS 16 units**
- **Novorapid Breakfast 6, Lunch 5, Supper 6**

Date	FBG	pc B	AC L	pc L	AC S	pc S	HS
Sun	9.6		6.5		6.3		7.4
Mon	10.4		5.2		6.1		7.9
Tues	4.3		6.4		6.7		8.3
Wed	12.4		5.1		5.7		8.1
Thur	5.1		4.9		4.3		7.2
Fri	8.7		4.3		4.1		7.3
Sat	13.5		7.0		5.5		8.0

What could be the cause of the elevated morning blood sugars?

a) Midnight snacking

b) Dawn effect

c) Insulin omission at bedtime

d) Somogyi effect

e) A + C

f) A+ C + D

Lynda

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Lynda

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Sun	9.6		6.5		6.3		7.4
Mon	10.4		5.2		6.1		7.9
Tues	4.3		6.4		6.7		8.3
Wed	12.4		5.1		5.7		8.1
Thur	5.1		4.9		4.3		7.2
Fri	8.7		4.3		4.1		7.3
Sat	13.5		7.0		5.5		8.0

Lynda

What would you suggest to Lynda as a first step?

a) Go on a continuous glucose monitor for 6 day
b) Go on an insulin pump
c) Switch to a long acting analogue such as glargine
d) Do 3 am blood glucose testing

Lynda

What would you suggest to Lynda as a first step?

a) Go on a continuous glucose monitor for 6 day

b) Go on an insulin pump

c) Switch to a long acting analogue such as glargine

✔ d) Do 3 am blood glucose testing

Norman

75 year old male

Type 2 diabetes X 22 years

A1c: 6.7%

Metformin 1000 mg BID,

Novolin NPH 30 units QAM and 24 units QPM

Norman

Novolin NPH 30 units QAM and 24 units QPM

Date	FBG	AC L	AC S	HS
Sun	3.6	9.8	4.7	6.7
Mon	4.2	5.6	3.8	5.9
Tues	4.0	4.3	4.0	7.2
Wed	3.1	8.9	3.9	7.5
Thurs	3.4	10.4	4.1	6.6
Fri	4.5	4.9	4.3	4.9

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Norman

The most important task for the diabetes educator is:

a) Exam his feet as he is overdue for a foot exam

b) Address Norman's immediate concerns

c) Ask Norman how he is feeling in the morning

d) Review treatment of hypoglycemia

e) Recommend adjustment to his insulin

If you could pick only 2 things to do what would they be?

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Norman

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Sample test questions

DKA

Judy was brought to hospital by her husband. She has been weak and sleepy for the last 24 hours. She is now complaining of abdominal pain.

What blood tests would you look at to determine if this is DKA or HHS?

a) Blood Glucose, anion gap, urine ketones, bicarbonate
b) Ethanol, salicylate, acetominophen
c) Insulin levels, blood ketones
d) Blood glucose, anion gap, blood ketones, pH, bicarbonate

DKA

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Dawn Phenomenon

What is correct regarding the Dawn Phenomenon?
a) It occurs only in Type 1
b) It is caused by growth hormone secretion
c) It is in response to nocturnal hypoglycemia
d) It is treated by decreasing bedtime insulin

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c) It is in response to nocturnal hypoglycemia
d) It is treated by decreasing bedtime insulin

Dawn 2 Study

Which statement about people with type 1 diabetes is accurate?

a) 49% of people experience diabetes distress

b) 10 % of people have depression

c) 90% of people feel their health care providers listen to them

d) 90% of people were helped to set goals by their health care providers

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D I A B E T E S

Dawn 2 Study

Which statement about people with type 1 diabetes is accurate?

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c) 90% of people feel their health care providers listen to them

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Elevated Blood Sugar

What is the name given to an elevated blood sugar following a low blood sugar?

a)Dawn Effect

b)Atypical hypoglycemia

c)Somogyi effect

d)Szycofski effect

Elevated Blood Sugar

What is the name given to an elevated blood sugar following a low blood sugar?

a)Dawn Effect

b)Atypical hypoglycemia

✔ c)Somogyi effect

d)Szycofski effect

Travel

Mr. Singh is travelling from Toronto to London England to visit family. He will be there one month. He takes NPH 36 units at bedtime and Jentadueto 2.5/1000 (linagliptin/metformin) in the morning. His flight leaves at 8 pm and he arrives in London at 8:30 am.

How would you advise him to adjust his insulin?

a) No change
b) Decrease NPH by 1/3
c) Increase NPH by 1/3
d) Skip his bedtime insulin as he is on the plane.

Travel

Mr. Singh is travelling from Toronto to London England to visit family. He will be there one month. He takes NPH 36 units at bedtime and Jentadueto 2.5/1000 (linagliptin/metformin) in the morning. His flight leaves at 8 pm and he arrives in London at 8:30 am.

How would you advise him to adjust his insulin?

a) No change

✔ b) Decrease NPH by 1/3

c) Increase NPH by 1/3

d) Skip his bedtime insulin as he is on the plane.

Travelling through Time Zones

West
Longer day

East
shorter day

Increase basal insulin

Decrease basal insulin

A difference of 3 hours does not require an adjustment of insulin time.

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Air Travel

Patient Tip

Have equipment (meter, insulin) and hypoglycemia treatment _with you_ in the seat pocket or under the seat.

www.diabetestravel.org

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Sweeteners

The acceptable daily intake of sucralose is:

a) 40 mg/kg body weight

b) 10% of carbohydrate

c) 9 mg/kg body weight

d) 60 gram/day

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Carbohydrate

Choose the meal that is closest to providing 52 gram carbohydrate

a) 2 slices bread, 2 slices sliced chicken, 1 cup strawberries, ¾ cup plain yogurt

b) 1 cup rice, 1 cup kidney beans, ½ cup broccoli, salad with 1 tsp oil and 1 tbsp vinegar

c) 6 inch submarine sandwich, diet coke

d) ¾ c cooked oatmeal, 1 slice toast, 1 tsp margarine, 1 egg, 2 tsp brown sugar, ½ cup milk

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d) ¾ c cooked oatmeal, 1 slice toast, 1 tsp margarine, 1 egg, 2 tsp brown sugar, ½ cup milk

Glycemic Index

Choose the factors which could affect the glycemic index

a) Toasting the bread

b) Adding lemon juice

c) Adding fat

d) A + B

e) B + C

f) A + C

Glycemic Index

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a) Toasting the bread

b) Adding lemon juice

c) Adding fat

d) A + B

✔e) B + C

f) A + C

A1c Reduction

The reduction in A1C you could expect from dietary changes would be;

a) 1-2 %

b).5-1%

c) No change as A1C decrease requires medication

d)2-5%

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d)2-5%

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D I A B E T E S

Sucrose

How much added sucrose could be used in a 7500 KJ (1800 calorie) according to the nutrition recommendations in the CPG?

a) 50 g

b) 65 g

c) 10 g

d) 45 g

Sucrose

How much added sucrose could be used in a 7500 KJ (1800 calorie) according to the nutrition recommendations in the CPG?

a) 50 g

b)65 g

c) 10 g

✔d)45 g

Pregnancy

What is the dose of folic acid recommended for women with Type 1 & 2 diabetes in the first trimester of pregnancy?

a) 1 mg

b) 3 mg

c) 5 mg

d)the usual amount in a prenatal vitamin

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a) 1 mg

b) 3 mg

✔c) 5 mg

d)the usual amount in a prenatal vitamin

Pregnancy

The glycemic target for a pregnant woman with Type 2 diabetes is:

a) Fasting 4-7 mmol/L

b) Fasting $\leq$ 5.3 mmol/L

c) doesn't matter once conception has occurred

d) whatever it takes to prevent hypoglycemia

Pregnancy

The glycemic target for a pregnant woman with Type 2 diabetes is:

a) Fasting 4-7 mmol/L

✔ b) Fasting < 5.3 mmol/L

c) doesn't matter once conception has occurred

d) whatever it takes to prevent hypoglycemia

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Transtheoretical Model of Behavior Change

A client presents stating that they made a mistake in his blood work and that he really doesn't have diabetes.

According to the stages of Change theory he would be in:

a) Denial

b) Anger Phase

c) Precontemplation

d) Never never land

Transtheoretical Model of Behavior Change

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According to the stages of Change theory he would be in:

a) Denial

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✔ c) Precontemplation

d) Never never land

Fibre

What is the upper limit of fibre recommended for a person with diabetes?

a) There is no limit

b) 30 grams

c) 50 grams

d) 25 grams

Fibre

What is the upper limit of fibre recommended for a person with diabetes?

a) There is no limit

b) 30 grams

✔c) 50 grams

d) 25 grams

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DIABETES

Insulin Pumps

In what case would a temporary rate not be used?

a) Illness

b) Exercise

c) Menstrual cycle

d) Hypoglycemia

Insulin Pumps

In what case would a temporary rate not be used?

a) Illness

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✔ d) Hypoglycemia

Insulin Pumps

What insulin would be used in an insulin pump?

a) Rapid

b) Regular

c) Basal

Insulin Pumps

What insulin would be used in an insulin pump?

✔ a) Rapid

    b) Regular

    c) Basal

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D I A B E T E S

Insulin Pumps

How long does it take for temporary basal rate change to become effective?

a) immediately

b) 30-45 minutes

c) 60-90 minutes

d) 2-3 hours

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Insulin Pump

A 35 year old woman has had an insulin pump for the last 3 years. Recently her A1c has been elevated.

What is the most likely cause?

a) She is counting carbohydrate more accurately since purchasing a scale

b) She changes her site every 5 days

c) She is exercising daily

d) She has less hypoglycemia

Insulin Pump

A 35 year old woman has had an insulin pump for the last 3 years. Recently her A1c has been elevated.

What is the most likely cause?

a) She is counting carbohydrate more accurately since purchasing a scale

✔ b) She changes her site every 5 days

c) She is exercising daily

d) She has less hypoglycemia

Jessica is a 17 year old who has had diabetes for 12 years. She had a recent admissions for DKA and has lost 20 pounds since her last clinic visit.

What would be the most likely cause of the weight loss?

a) Additional exercise

b) Starvation diet

c) Insulin omission

d) Less hypoglycemia from frequent use of fibre snacks

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Teenager

Jessica is a 17 year old who has had diabetes for 12 years. She had a recent admissions for DKA and has lost 20 pounds since her last clinic visit.

What would be the most likely cause of the weight loss?

a) Additional exercise

b) Starvation diet

✔ c) Insulin omission

d) Less hypoglycemia from frequent use of fibre snacks

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D I A B E T E S

Hypoglycemia

Seema is presently on glimipride and metformin. Acarbose has been added as the A1c is still elevated.

What would be the most important information to tell her about this change in medication?

a) Acarbose does not cause hypoglycemia

b) Fruit juice is the best way to treat hypoglycemia

c) Hypoglycemia must be treated with glucose tablets or milk

d) Hypoglycemia is best treated with food e.g. crackers

e) If hypoglycemia occurs the metformin should be reduced.

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DIABETES

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A1c

What vitamin supplements could decrease A1c?
a) Vitamin D
b) Vitamin C & E
c) Vitamin A & E
d) Vitamin B12 & folic acid

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A1c

What vitamin supplements could decrease A1c?

a) Vitamin D

✔ b) Vitamin C & E

c) Vitamin A & E

d) Vitamin B12 & folic acid

Position Statement

Use of Glycated Hemoglobin (A1C) in the Diagnosis of Type 2 Diabetes Mellitus in Adults
Ronald M. Goldenberg1 MD FRCPC FACE, Alice Y.Y. Cheng2 MD FRCPC, Zubin Punthakee3 MD FRCPC, Maureen Clement4 MD CCFP

Table 1. Factors that can affect A1C (adapted from 11)

Factor	Increased A1C	Decreased A1C	Variable change in A1C
Erythropoiesis	Iron deficiency B12 deficiency Decreased erythropoiesis	Use of erythropoietin, iron or B12 Reticulocytosis Chronic liver disease	
Altered hemoglobin			Fetal hemoglobin Hemoglobinopathies Methemoglobin Genetic determinants
Glycation	Alcoholism Chronic renal failure Decreased erythrocyte pH	Ingestion of aspirin, vitamin C or vitamin E Hemoglobinopathies Increased erythrocyte pH	

Erythrocyte destruction	Increased erythrocyte lifespan:
	  Splenectomy
		Decreased erythrocyte lifespan:
		  Chronic renal failure
		  Hemoglobinopathies
		  Splenomegaly
		  Rheumatoid arthritis
		  Antiretrovirals
		  Ribavirin
		  Dapsone	

Assays	Hyperbilirubinemia Carbamylated hemoglobin Alcoholism Large doses of aspirin Chronic opiate use	Hypertriglyceridemia	Hemoglobinopathies

Water

D I A B E T E S

Sick Day Management

Justine has just had her wisdom teeth removed. She is trying to convert her lunch to liquids which she can tolerate. She normally has 45 grams of carbohydrate. Which answer is not equivalent ?

a) 1 cup orange juice and 1 stick of popsicle

b) 1 cup jello and 1 cup apple juice

c) 1 pudding cup and ½ cup ice cream

d) 1 cup chicken noodle soup and 8 crackers and ½ cup gingerale

Sick Day Management

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a) 1 cup orange juice and 1 stick of popsicle

✔b) 1 cup jello and 1 cup apple juice

c) 1 pudding cup and ½ cup ice cream

d) 1 cup chicken noodle soup and 8 crackers and ½ cup gingerale

Type 2 in Children

Ravneet is 10 and is newly diagnosed with type 2 diabetes. What is the recommended amount of activity for a child this age?

a) 30 minutes of light activity and limit screen time to 3 hours

b) 60 minutes of moderate activity and limit screen time to 2 hours

c) 60 minutes of light activity and limit screen time to 3 hours

d) 30 minutes of vigorous activity and limit screen time to 2 hours

Type 2 in Children

Ravneet is 10 and is newly diagnosed with type 2 diabetes. What is the recommended amount of activity for a child this age?

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Eating Disorders

Diabulmia can be described as:

a) People with diabetes using binging and purging to control weight

b) People with diabetes underdosing or omitting insulin to control weight

c) People with diabetes with depression purposely omitting carbohydrate foods

d) A person with both diabetes, depression and bulimia

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good luck ❤

Good Luck !

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