Government of South Australia
SA Health

FACTSHEET | JULY 2021

Basal bolus insulin in type 1 diabetes - calculations

Basal bolus insulin is used to replace the insulin that is no longer produced in type 1 diabetes. The 'basal bolus insulin' approach most closely matches how the body would make insulin in a person without type 1 diabetes.

Insulin:Carbohydrate (CHO) Ratio Calculations

Using your insulin:carbohydrate ratio, calculate how many units of rapid acting insulin are required for each meal.

What blood glucose level is "too low"?

Low blood glucose is defined as a blood glucose less than 4.0mmol/L. This definition may be modified in the aged or in persons with impaired hypoglycaemia awareness or other medical conditions.

Insulin:CHO Ratio using the 500 Rule	
If counting in **grams**: divide 500 by your TDD	**500 ÷ _____ (TTD) = _____**
The answer suggests that 1unit of rapid acting insulin is required for every _____ **grams of CHO**.	
If counting in **15gm exchanges**; divide 15 by the answer above	**15 ÷ _____ = _____**
The answer suggests that _____ units of rapid acting insulin is required for every **15gram exchange of CHO**.	

Example #1: Lunch

Turkey sandwich with 2 slices of bread	grams/exchanges
1 small apple	grams/exchanges
1 small flat white coffee	grams/exchanges
Answer	**units of rapid acting insulin**

Example #2: Breakfast

1 egg and 2 rashers of bacon	grams/exchanges
1 serve of baked beans	grams/exchanges
2 pieces of toast	grams/exchanges
1 glass of orange juice	grams/exchanges
Answer	**units of rapid acting insulin**

Example #3: Dinner

Pork and vegetable stir fry	grams/exchanges
1 cup cooked rice	grams/exchanges
1 glass white wine	grams/exchanges
1 serve of cheesecake with blueberries	grams/exchanges
Answer	**units of rapid acting insulin**

Example #4: Lunch

Warm chicken salad	grams/exchanges
1 small dinner roll	grams/exchanges
1 diet coke	grams/exchanges
Answer	**units of rapid acting insulin**

Example #5: Dinner

1 greek yiros	grams/exchanges
1 serve hot chips	grams/exchanges
1 can of pepsi	grams/exchanges
Answer	**units of rapid acting insulin**

Insulin Sensitivity Factor Calculations

Using your insulin sensitivity factor, calculate how many units of rapid acting insulin are required to correct the out of target glucose results.

Insulin Sensitivity Factor (ISF) using the 100 Rule
Divide 100 by your TDD **100 ÷ _____(TDD) = _____**
The answer suggests that 1unit of rapid acting insulin will lower the blood glucose by _____ mmol/L.

Example #1:

Before Lunch BG/SG:	15.0mmol/L
Target BG/SG:	mmol/L
ISF:	1 unit of rapid acting insulin lowers my glucose by mmol/L
Answer	**units of rapid acting insulin**

Example #2:

Before Dinner BG/SG:	11.2mmol/L
Target BG/SG:	mmol/L
ISF:	1 unit of rapid acting insulin lowers my glucose by mmol/L
Answer	**units of rapid acting insulin**

Example #3:

Before Lunch BG/SG:	3.0mmol/L
Target BG/SG:	mmol/L
ISF:	1 unit of rapid acting insulin lowers my glucose by mmol/L
Answer	**units of rapid acting insulin**

Example #4:

Before Breakfast BG/SG:	14.3mmol/L
Target BG/SG:	mmol/L
ISF:	1 unit of rapid acting insulin lowers my glucose by mmol/L
Answer	**units of rapid acting insulin**

For more information

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