

**Exercise and Nutrition
in Type 1 Diabetes:
Healthcare Professional Event**



Exercising in Type One Diabetes - Technology

Dr Alistair Lumb

John Pemberton RD



2020 Webinar Series

Zoom requirements

- Name your self and your trust e.g. John Pemberton (Birmingham)
- Keep video on if you can
- Keep microphone on mute until you want to speak
- During session you will see a message to join breakout room – Please accept
- The slides will be put in the chat at the END of the session
- Get a pen and paper
- Please be interactive – we are all here to learn from each other – especially John & Alistair from you

Alistair Lumb- Conflicts of interest

Speaker Fees and Advisory Boards

- Abbott
- Dexcom
- Insulet
- Novo Nordisk

Research Support

- Abbott
- Novo Nordisk

Positions

- Vice Chair DTN-UK
- Clinical Lead NaDIA Harms Audit and Member of NaDIA Steering Group
- Member of Diabetes UK Diabetes Research Study Group 4 for Acute Care
- EXTOD Contributor

John Pemberton Conflicts of interest

Speaker Fees and Advisory Boards

- Roche
- Dexcom

Positions

- Worked for Medtronic 2011-2015

Other

- Has type 1 diabetes since 2008
- Has tried all CGM's and isCGM
- Has tried 3 different APS systems and thinks he outperforms them

Glucose responses to different exercises in T1D



Flexibility /
Stretching



Aerobic



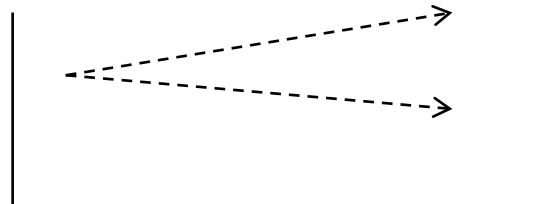
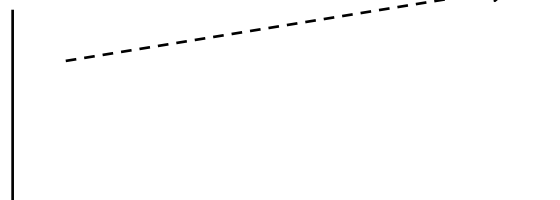
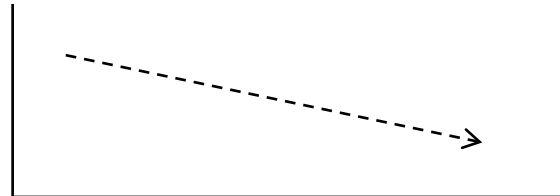
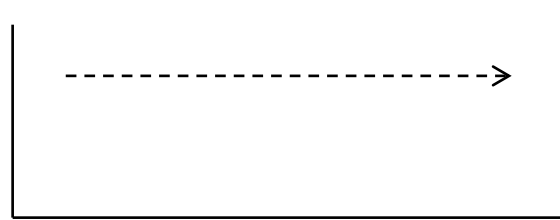
Anaerobic



+



Mixed



Initial
Blood
Glucose
Change

Bolus dose adjustments before if within 90min

	Exercise duration	
	30 min	60 min
Mild aerobic exercise (~25% VO ₂ max)	-25%	-50%
Moderate aerobic exercise (~50% VO ₂ max)	-50%	-75%
Heavy aerobic exercise (70-75% VO ₂ max)	-75%	NA
Intense aerobic or anaerobic exercise (>80% VO ₂ max)	No reduction recommended	NA

Our recommendations are based on published studies.^{52,56,75,101} NA=not assessed, since exercise intensity is typically too high to be sustained for 60 min for most individuals. VO₂max=maximal oxygen consumption.

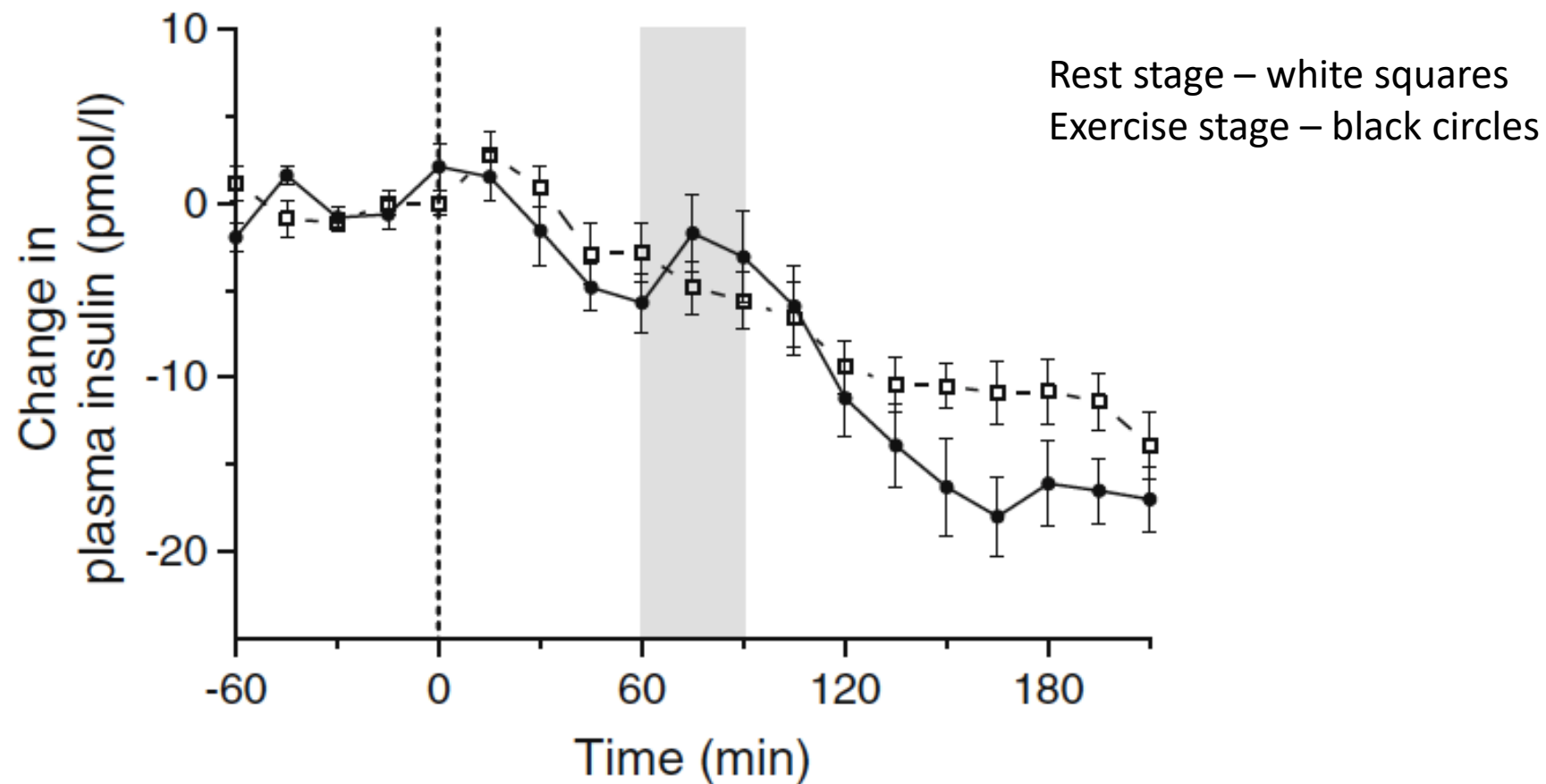
Table 3: Suggested reduction in bolus insulin dose before exercise, based on intensity of exercise, for exercise started within 90 min of consumption of the meal

JDRF PEAK Riddell et al (2017) Lancet D&E

Insulin pumps – aerobic activity

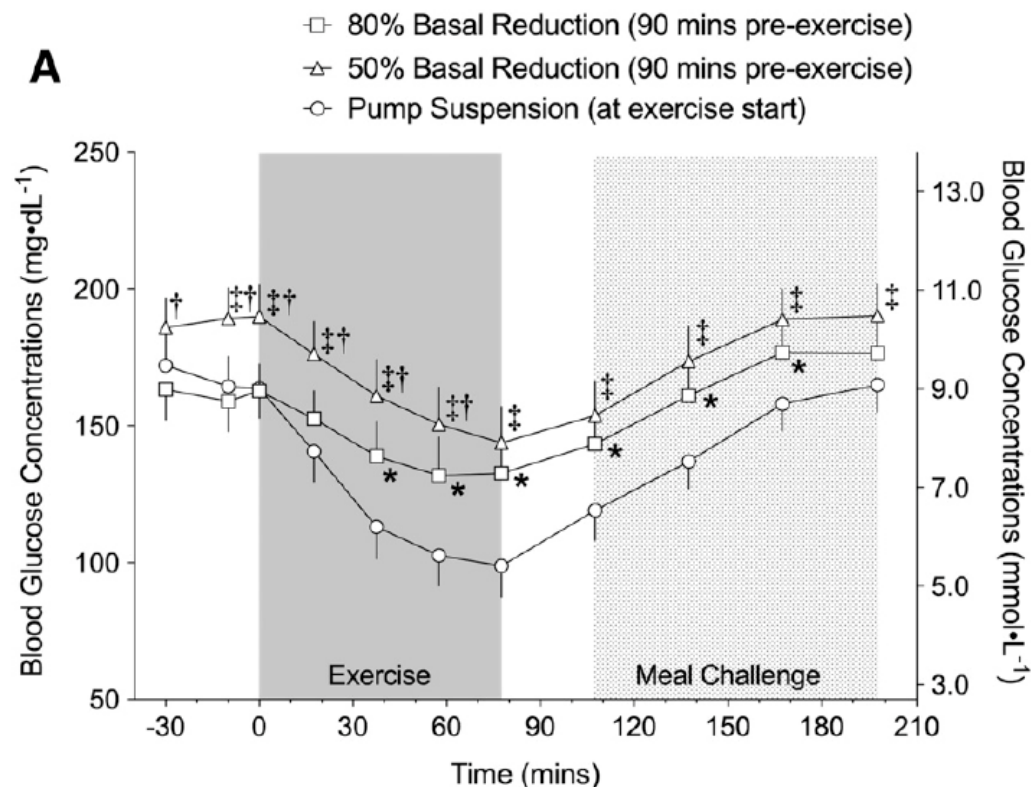
- Main challenge with aerobic activity is falling blood glucose
- This means we want to reduce circulating insulin during activity
- If within 90 minutes of a meal can do this in part by reducing bolus insulin as before
- If more than 90 minutes after last bolus dose then it's very important to adjust **basal** insulin

When to adjust basal insulin?



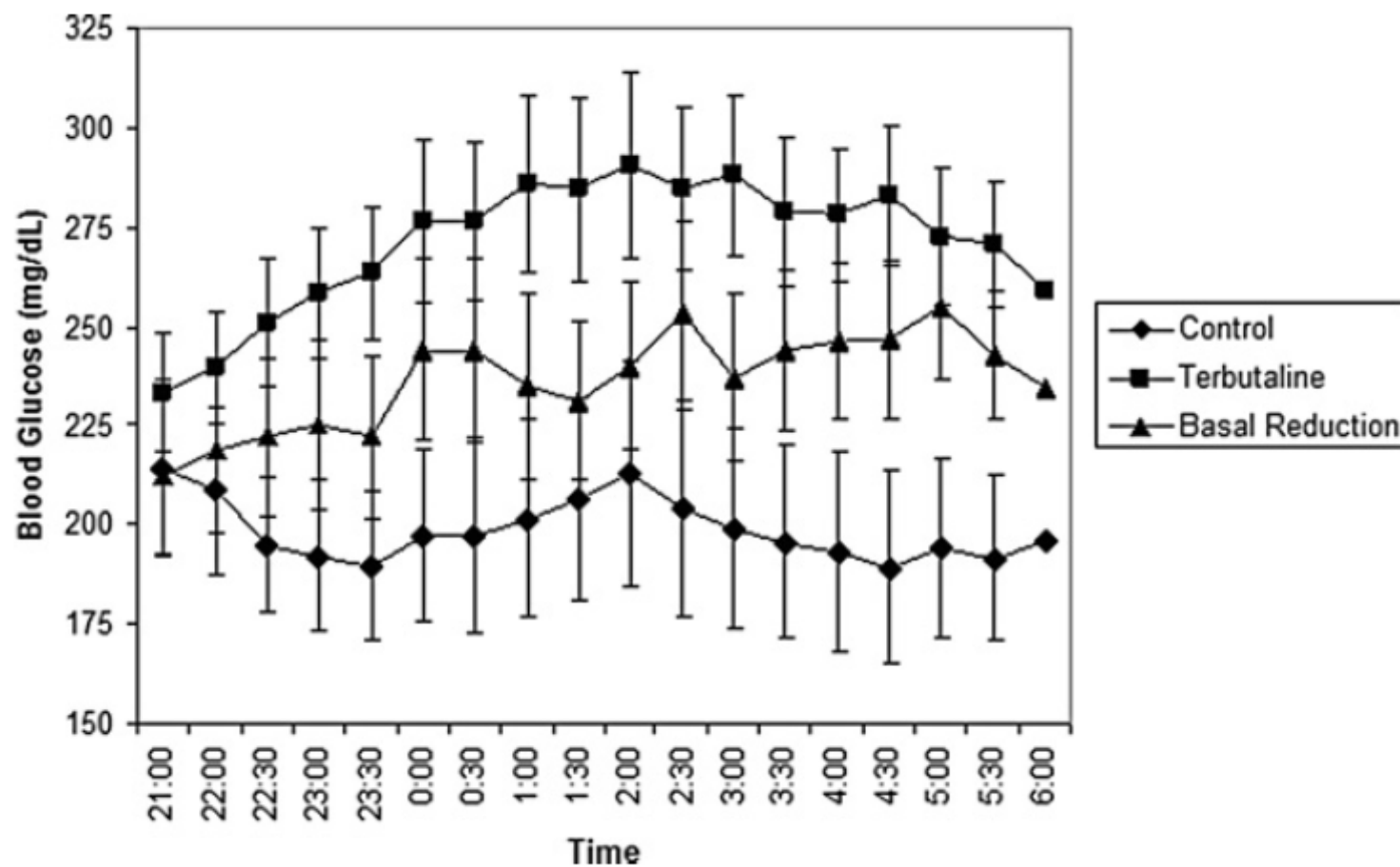
McAuley et al (2016) *Diabetologia* 59: 1636-1644

How much to reduce basal insulin?



Zaharieva et al *Diabetes Care* <https://doi.org/10.2337/dc18-2204>

Insulin pumps - afterwards



Taplin et al (2010) *Journal Pediatrics* 157(5):784-788

Insulin pump - removal

- Pump removal may be necessary for some forms of activity, especially when activity is extended, for example:
 - Watersports
 - Contact sports
 - Martial arts
- Pump removal not recommended for more than 1 hour ideally, maximum 2 hours due to risk of ketoacidosis
- Missed basal can be replaced either just before removal (anaerobic – no reduction) or just after reconnection (aerobic – 50-80% reduction)

Insulin Pumps – anaerobic activity

- For shorter periods of anaerobic activity, no basal or bolus dose adjustment is recommended
- For extended periods of resistance activity (for example multiple circuits) may need to make a reduction to basal insulin to combat hypoglycaemia – reduce basal by 50% 60-90 minutes before activity
- There is a risk of nocturnal hypoglycaemia, particularly for unaccustomed activity or exercise after 4pm – reduce basal by 20% for 6 hours from bedtime

Continuous Glucose Monitoring (CGM)

Types of CGM

- Intermittently scanned CGM (isCGM or Flash Glucose Monitoring) records interstitial glucose data in a sensor which can be accessed by scanning using a reader or compatible mobile phone
 - For example, Freestyle Libre
- Real time CGM (rtCGM) sends interstitial glucose data continuously to a reader or mobile phone, with alarms that can be set to alert to low/falling and high/rising glucose
 - Most common examples currently Dexcom (G6) and Medtronic (Guardian 3)
 - Other systems available including Glucomen, Medtrum

Trend arrows

Libre Dexcom Medtronic	Description	Where the glucose will be in 10 minutes
	Rapidly rising	more than 2.0mmol/l higher
	Rising	1.5mmol/l higher
	Slowly rising	1mmol/l higher
	Stable	Same
	Slowly falling	1 mmol/l lower
	Falling	1.5 mmol/l lower
	Rapidly falling	more than 2.0mmol/l lower

Activity: Where will these two glucose values be in 10 minutes time?

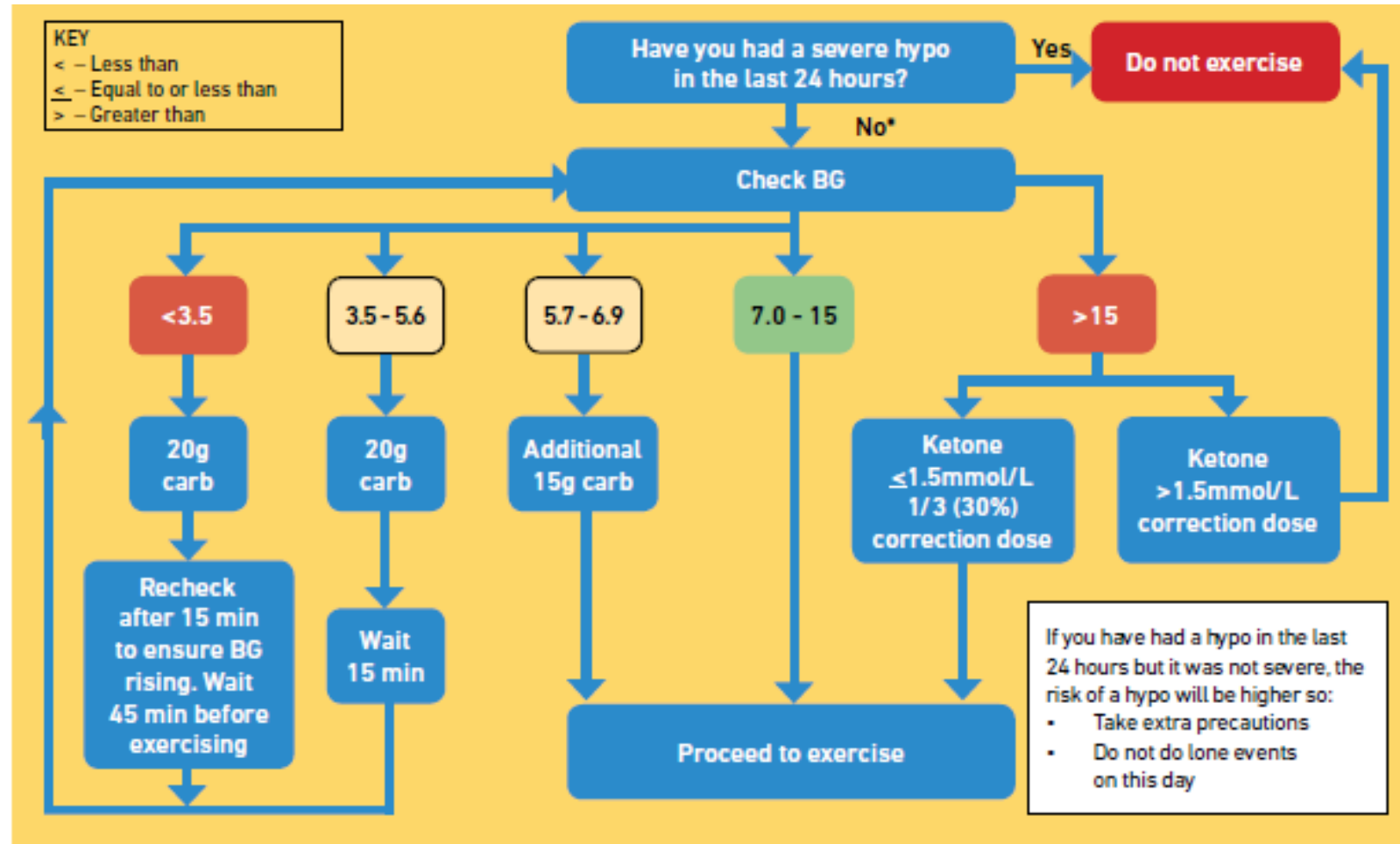
Watch me: trend arrows



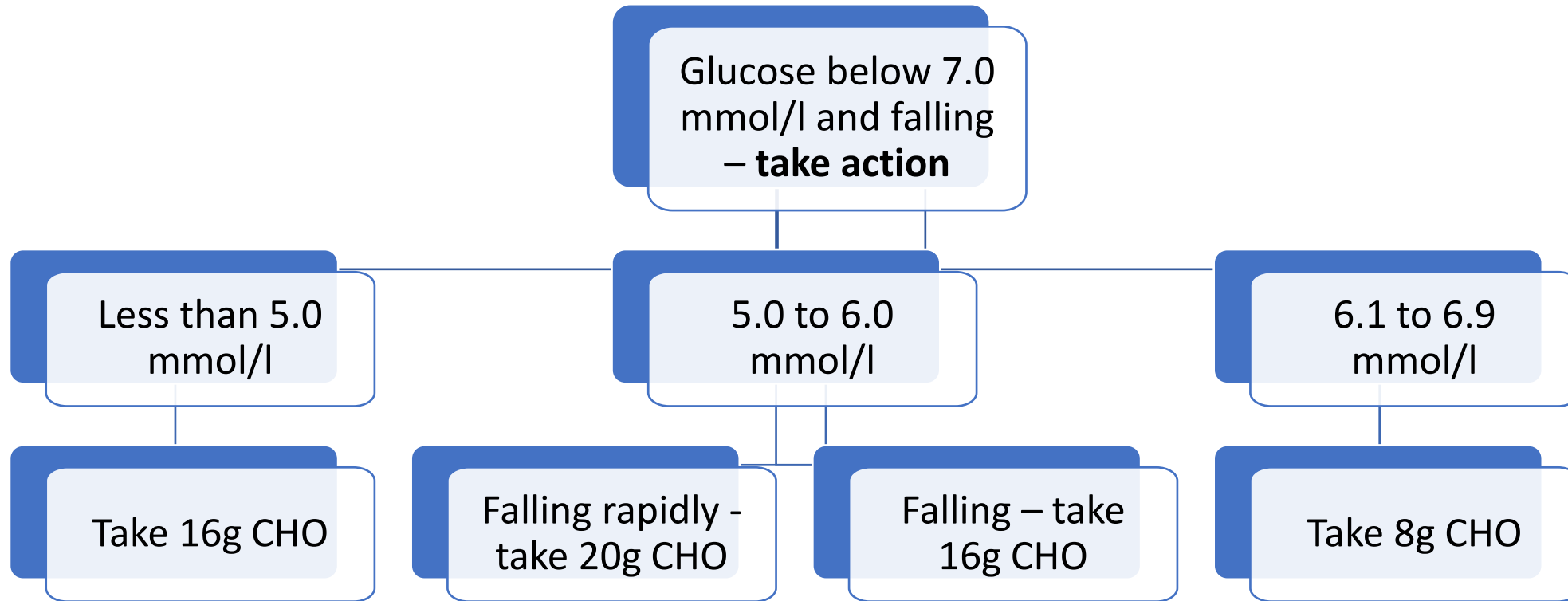
CGM does not perform as well during exercise

- Braken et al (2018) *Nutrients* 2018, 10, 93 & Moser et al. (2020) *CGM Position statement*
 - Rapid changes in interstitial fluid in exercising muscles increases lag time from **5 to 12-24min!**:
 - 15-20% increase volume
 - Glucose movement from capillary to interstitial fluid is volatile
 - Changes in rate and direction of flow between vasculature and interstitial fluid and lymphatics
 - Both insulin-mediated and non-insulin-mediated glucose uptake in tissue impacted during exercise
 - Body temperature & acidity
 - Exercise type & Insulin on board
 - **Alarms**
 - **Set low glucose alert higher at 5.5mmol/L**
 - **Consider setting fall alert**

Glucose before exercise



CGM can guide real time strategies



Riddell & Milliken (2011) *Diabetes Technology and Therapeutics* **13(8)**:813-825

CHO replacement post-exercise

Post-exercise sensor glucose including nocturnal phase for different groups in T1D			Trend arrow	Action
<i>Ex 2 and/or low hypo risk</i>	<i>Ex 1 and/or moderate hypo risk^a</i>	<i>Ex 0 and/or high hypo risk^b</i>	<i>Direction</i>	<i>CHO (g)</i>
<4.4 mmol/l (<80 mg/dl)	<5.0 mmol/l (<90 mg/dl)	<5.6 mmol/l <100 mg/dl	↑	No CHO
			↗	
			→	~10g CHO
			↘	~15g CHO
			↓	Individual amount CHO ingestion

EASD position statement

Breakout rooms - Case Studies

- 50kg 15 year old boy on MDI (Lantus 20units) + Dexcom
 - Football for 60 mins at 18:00
 - Last meal 17:00: 80g carbs
1u:10g ICR
 - Exercises Twice per week like this and good hypo awareness
 - Plan (ICE):
 - Before
 - During
 - After
- 70kg 30 year man on pump & Libre
 - Running 10k 17:00
 - Last meal 13:00: 50g carbs
1u:10g ICR
 - Impaired hypo awareness
 - Plan (ICE):
 - Before
 - During
 - After

BWC Type 1 DEC

Dexcom Type 1 DEC (Diabetes Exercise Calculator)

I agree: I am a qualified diabetes professional. I will not give this to a patient. I will only use the calculator after watching this [video](#) and achieving **competency**. I will not pass the calculator on to any other person. I will only use the calculator with Adobe Acrobat Reader? Yes No

- Open in Adobe Acrobat Reader (click to get for free): [Computer](#) [Apple](#) [Android](#)
- For a new plan make sure the answers to both review questions read "Stayed in target"

1. What's your name?

2. What activity are you doing and what time are you doing it?

3. Are you using an insulin pump or multiple daily injections?

4. How many minutes before exercise are you eating and giving insulin?

5. How many minutes are you exercising for?

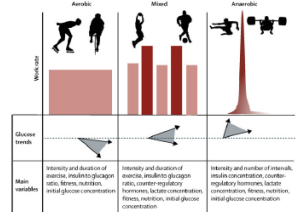
6. What is your weight in kilograms (kg)?

7. What is your exercise hypoglycaemia risk?

8. What type of activity are you doing (see pictures)?

9. What glucose units does your device use?

10. At what glucose & ketone level should you stop exercise?



Guidelines the Type 1 DEC is based on (click & read):

- [Moser et al \(2020\) EASD/ISPAD CGM& Exercise](#)
- [Adolfsson et al \(2018\) ISPAD Paediatric Exercise](#)
- [Riddell et al \(2017\) Type 1 Exercise Consensus](#) (where the graphic is from)

Adapting the plan after trying the first trial:

Glucose level during exercise?

Glucose level after exercise?

Disclaimer

- Plans must be made by a qualified diabetes professional
- Always consult a qualified diabetes professional before trying or adapting a plan

JP

Activity How long for How long after meal	Before Activity: Meal before Basal before	During Activity	After activity options: Choose a maximum of two
Football 18:00 for 60 minutes starting 60 minutes after last meal	Reduce meal insulin by 25% No basal change necessary	See the chart below for exercise action required for: 1. 20 mins before 2. Just before 3. Every 20 mins For safety: set low alert at 5.6mmol/L	1. Reduce meal insulin by 50% 2. If evening exercise: Reduce night basal insulin by 20% 3. 20 grams low/medium GI carbs before bed without insulin For safety: 50% of correction doses for 90 mins & set low alert at 4.4mmol/l until the morning

Sensor glucose Levels	Trend arrow & action to take	Carbohydrate grams needed for 20 mins	Dextrose (3g)	Lucozade Spr
<4.0mmol/L	<3.0mmol/L: NO exercise	25 Treat & re-check in 20 minutes	8	385
4.0-4.9 mmol/L	↔↔	23 & delay exercise for 20 minutes	8	346
	↔	18 & delay exercise for 20 minutes	6	269
	↔	13 & delay exercise for 20 minutes	4	192
	↔	8 & delay exercise for 20 minutes	3	115
	↔	3 & delay exercise for 20 minutes	1	38
5.0-6.9 mmol/L	↔↔	23 & start exercise check in 20 mins	8	346
	↔	18 & start exercise check in 20 mins	6	269
	↔	13 & start exercise check in 20 mins	4	192
7.0-10.0 mmol/L	↔↔↔	5 & start exercise check in 20 mins	2	77
	↔	13 & start exercise check in 20 mins	4	192
10.1-13.9 mmol/L	↔↔↔↔	0 & start exercise check in 20 mins		
≥14.0mmol/L & ketones <0.6mmol/L	↔↔↔↔	0 & start exercise check in 20 mins		
	↔↔↔	OK to exercise: No carbohydrate for 20 minutes OK to exercise: Consider 50% of correction dose before starting		
≥14.0mmol/L & ketones ≥0.6mmol/L	All Arrows	No exercise: Correction dose & ketones <0.6mmol/L before starting exercise		

Type 1 DEC

Libre Type 1 DEC (Diabetes Exercise Calculator)

I agree: I am a qualified diabetes professional. I will not give this to a patient. I will only use the calculator after watching this [video](#) and achieving [competency](#). I will not pass the calculator on to any other person. I will only use the calculator with Adobe Acrobat Reader? Yes No

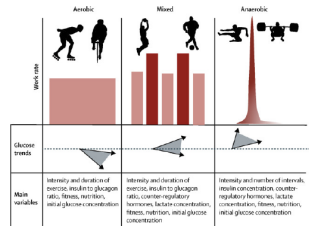
- Open in Adobe Acrobat Reader (click to get for free): [Computer](#) [Apple](#) [Android](#)
- For a new plan make sure the answers to both review questions read "Stayed in target"

1. What's your name? 2. What activity are you doing and what time are you doing it? 3. Are you using an insulin pump or multiple daily injections?

4. How many minutes before exercise are you eating and giving insulin? 5. How many minutes are you exercising for? 6. What is your weight in kilograms (kg)?

7. What is your exercise hypoglycaemia risk?

8. What type of activity are you doing (see pictures)? 9. What glucose units does your device use? 10. At what glucose & ketone level should you stop exercise?



Guidelines the Type 1 DEC is based on (click & read):

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- [Riddell et al \(2017\) Type 1 Exercise Consensus](#) (where the graphic is from)

Adapting the plan after trying the first trial:

Glucose level during exercise? Glucose level after exercise?

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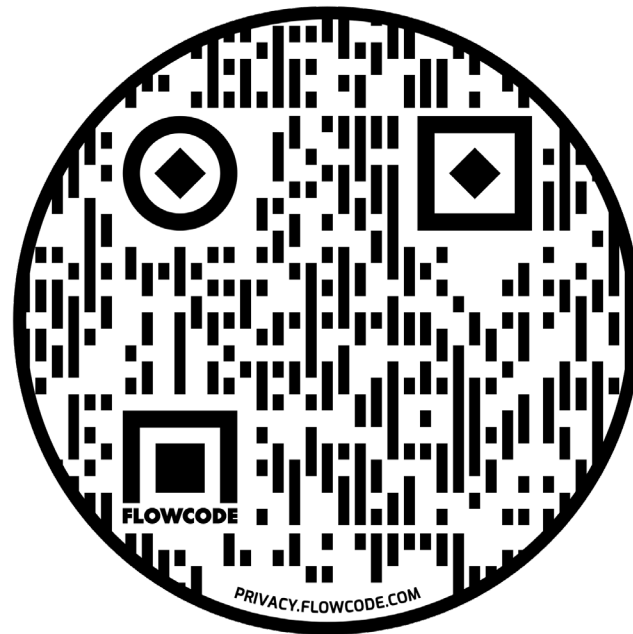
Joe Bloggs

Activity How long for How long after meal	Before Activity: Meal before Basal before	During Activity	After activity options: Choose a maximum of two
Running 17:00 for 50 minutes starting 240 minutes after last meal	No meal insulin reduction Reduce basal insulin by 50% 90 minutes before exercise	See the chart below for exercise action required for: 1. 20 mins before 2. Just before 3. Every 20 mins	1. Reduce meal insulin by 50% 2. If evening exercise: reduce basal rate by 20% for 6 hours 3. 24 grams low/medium GI carbs before bed without insulin For safety: 50% of correction doses for 90 mins & scan at 2-3am

Sensor glucose Levels	Trend arrow & action to take	Carbohydrate grams needed for 20 mins	Dextrose (3g)	Lucozade
<4.0mmol/L Check BG	<3.0mmol/L: NO exercise	30 <small>Treat & re-check in 20 minutes</small>	10	333
4.0-4.9 mmol/L	↓	30 & delay exercise for 20 minutes	10	333
	↘	24 & delay exercise for 20 minutes	8	267
	→	18 & delay exercise for 20 minutes	6	200
	↗	12 & delay exercise for 20 minutes	4	133
	↑	6 & delay exercise for 20 minutes	2	67
5.0-8.9 mmol/L	↓	30 & start exercise check in 20 mins	10	333
	↘	24 & start exercise check in 20 mins	8	267
	→	18 & start exercise check in 20 mins	6	200
	↗ ↑	12 & start exercise check in 20 mins	4	133
9.0-12.0 mmol/L	↘ ↓	18 & start exercise check in 20 mins	6	200
	→	0 & start exercise check in 20 mins		
	↗ ↑	0 & start exercise check in 20 mins		
12.1-13.9 mmol/L	All Arrows	0 & start exercise check in 20 mins		
≥14.0mmol/L (Check BG) & ketones <0.6mmol/L	→ ↘ ↓	OK to exercise: No carbohydrate for 20 minutes		
	↗ ↑	OK to exercise: Consider 50% of correction dose before starting		
≥14.0mmol/L & ketones ≥0.6mmol/L	All Arrows	No exercise: Correction dose & ketones <0.6mmol/L before starting exercise		

BWC - Type 1 DEC's

- <https://forms.gle/KdRfJsC1AnMX1kd29>



Closed loop systems

Closed loop systems and exercise

- Some inherent challenges for closed loop systems with exercise
 - Basal rate reductions ideally made 90 minutes prior to aerobic exercise
 - Sensor lag means changes in glucose won't be detected until after exercise begins
 - So timings don't really work!
 - Some activities may require pump removal
- So do they work?

APS Systems

<https://hcp.medtronic-diabetes.co.uk/>



https://www.airliquidehealthcare.co.uk/sites/homecare_uk/files/Control-IQ-Training-for-Clinical-Professionals-Module/story.html



<https://camdiab.cdep.org.uk/>



<https://loopkit.github.io/loopdocs/>



<https://androidaps.readthedocs.io/en/latest/EN/>



<https://openaps.org/>



Must Read Paper for APS & Exercise

ARTICLE IN PRESS

Can J Diabetes xxx (2020) 1–10



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Contents lists available at [ScienceDirect](#)

Canadian Journal of Diabetes

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www.canadianjournalofdiabetes.com

DIABETES
CANADA



Review

Glucose Control During Physical Activity and Exercise Using Closed Loop Technology in Adults and Adolescents with Type 1 Diabetes

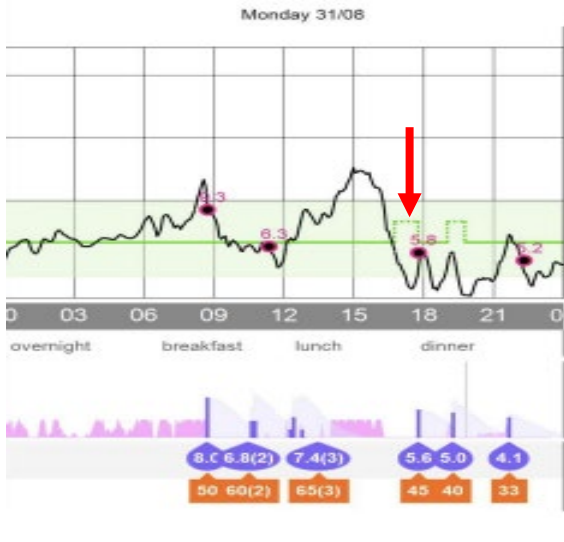
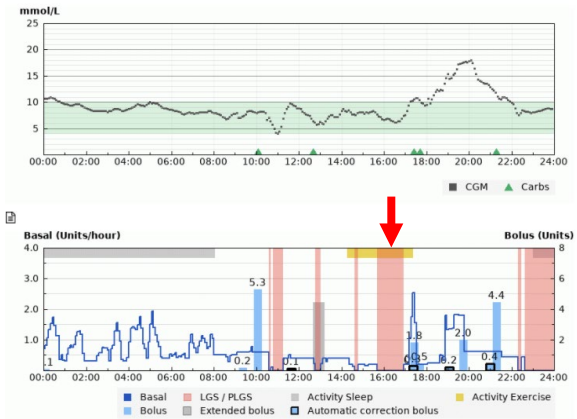
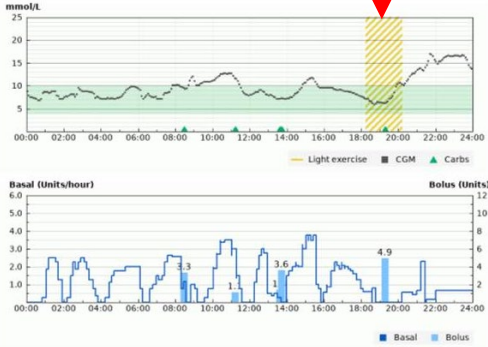
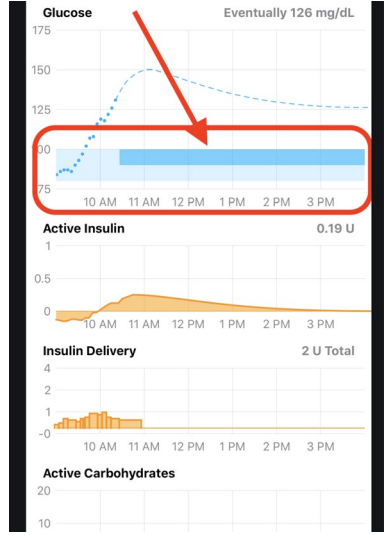
Dessi P. Zaharieva PhD^{a,*}; Laurel H. Messer RN, MPH, CDE^b; Barbora Paldus MBBS^c; David N. O'Neal MD^{c,d}; David M. Maahs MD, PhD^{a,e}; Michael C. Riddell PhD^{f,g}

^a Division of Endocrinology, Department of Pediatrics, Stanford University School of Medicine, Stanford, California, United States

The different systems with CE Mark

Variable	670G – Auto Mode	780G – SmartGuard	T-Slim Control IQ	CamAPS FX
Where to get training?	https://hcp.medtronic-diabetes.co.uk/	https://hcp.medtronic-diabetes.co.uk/	https://www.airliquidehealthcare.co.uk/sites/homecare_uk/files/Control-IQ-Training-for-Clinical-Professionals-Module/story.html	https://camdiab.cdep.org.uk/
What need	670G pump & consumables Guardian™ Sensor 3 Guardian™ 3 Link Transmitter Carelink account linked to centre Ascensia Contour Next Link 2.4	780G pump & consumables Guardian™ Sensor 3 Guardian™ 3 Link Transmitter (BLE) Carelink account linked to centre Roche Accu-Chek Guide Link Meter Patient: MiniMed Mobile APP Care partners: Carelink Connect APP	T-Slim x 2 pump & consumables Dexcom G6 sensor Dexcom G6 transmitter Control IQ algorithm Company started or HCP (Certification available) Diasend account linked to centre - optional	Dana Pump & consumables Dexcom G6 sensor Dexcom G6 transmitter Android phone CamAPS APP & paid subscription Diasend account linked to centre Certified trainers with number
CE Mark	7 years + 8u TDD NovoRapid, Humalog	7 years + 8u TDD NovoRapid, Humalog	6 years + Weight 25-140kg 10-100u TDD No pregnancy (Pump & Dexcom ok) NovoRapid & Humalog	1 year + Weight 10-300kg 5-300u TDD NovoRapid, Humalog, Apidra Dexcom licenced from 2yrs so clinical decision if using 1-2yrs NovoRapid, Humalog, Apidra, FiAsp

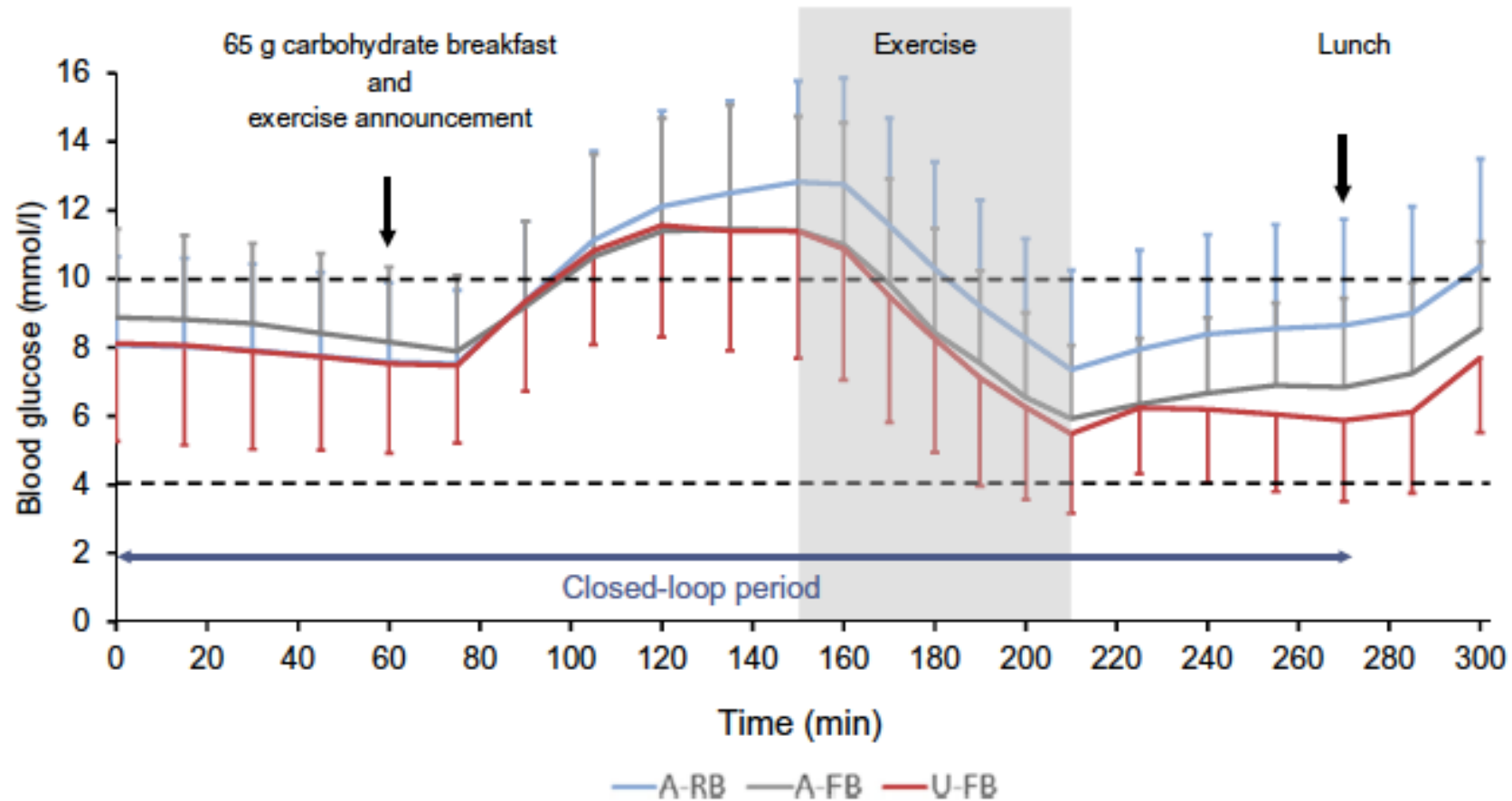
What settings will help for exercise?

Variable	670G & 780G	T-Slim Control IQ	CamAPS FX	DIY
Exercise	<p>Temp target 8.3mmol/L</p> <p>Effective if exercise more than 90 minutes after eating if Active insulin is set at 2-3 hours</p> <p>Temp target must be set 90 minutes before activity.</p> <p>Effective for preventing hypos after activity by extending up to 6 hours after.</p> <p>Will need to reduce carbs (25-50%) entered into bolus wizard if meal within 90 minutes of exercise.</p> 	<p>Control IQ Exercise Target 7.8-8.9mmol/L.</p> <p>Can set insulin setting profiles with basal rates, ICR and ISF relaxed e.g. -25% (mixed) & -50% (aerobic).</p> <p>Set Exercise Target and insulin profile 90 minutes before activity.</p> <p>Effective for preventing hypos after activity by extending up to 6 hours after.</p> <p>As shows below: 90 minutes after eating, basal is running normally as recognises carbs on board, therefore more chance of Exercise target, change of insulin settings profile and Control IQ preventing hypo.</p> 	<p>Ease Off: No insulin delivered below 7.7mmol/L, insulin sensitivity increased by 50% in the algorithm, target increased by 2.5mmol/L (5.8 to 8.2mmol/L)</p> <p>Set 90 minutes before activity.</p> <p>Effective for preventing hypos after activity by extending up to 6 hours after.</p> <p>As shows below: 90 minutes after eating, basal is running normally as the algorithm recognises carbs on board, therefore more chance of "Ease off" preventing hypo. May still need less carbs (25%) entered into bolus calculator if exercise within 90 mins of eating.</p> 	<p>DIY: user set (3.5 – 14.0 mmol/L)</p> <p>Can set insulin setting profiles with basal rates, ICR and ISF relaxed e.g. 25% (mixed) & 50% (aerobic).</p> <p>Set Exercise Target and insulin profile 90 minutes before activity.</p> <p>Effective for preventing hypos after activity by extending up to 6 hours after.</p> 

Must drip feed carbs during exercise as needed (same for DIY)?

Variable	670G & 780G	T-Slim Control IQ	CamAPS FX
Preventing highs with basal increases	If Algorithm predicts above the Temp target level the basal insulin is increased = Hypo risk	If Algorithm predicts above the Exercise target level the basal insulin is increased = Hypo risk	If Algorithm predicts above the “Ease off” target level the extended bolus is increased = Hypo risk
Preventing highs with auto corrections	If 780G Algorithm predicts above the Temp target level and going high fast autocorrection no longer applied = hypo protection	If Algorithm predicts above the Temp target level and going above 10.0mmol/L an auto correction is delivered = Big hypo risk	If Algorithm predicts above the “Ease off” level and going high fast a more aggressive extended bolus is delivered = Big hypo risk
Solution: Small amount carbs just before & during exercise – cap at 60kg as cannot absorb more than 1g/min of glucose	Drip feed glucose every 20 minutes. Start at 0.5g/kg/hr and vary according to CGM trend arrows. E.g. 30kg = 4g per 20 minutes	Drip feed glucose every 20 minutes. Start at 0.5g/kg/hr and vary according to CGM trend arrows. E.g. 50kg = 8g per 20 minutes	Drip feed glucose every 20 minutes. Start at 0.5g/kg/hr and vary according to CGM trend arrows. E.g. 60kg = 10g per 20 minutes

Exercise 90 minutes after breakfast



Tagougui et al (2020) *Diabetologia* **63**:2282-2291

Closed loop overnight - hypoglycaemia

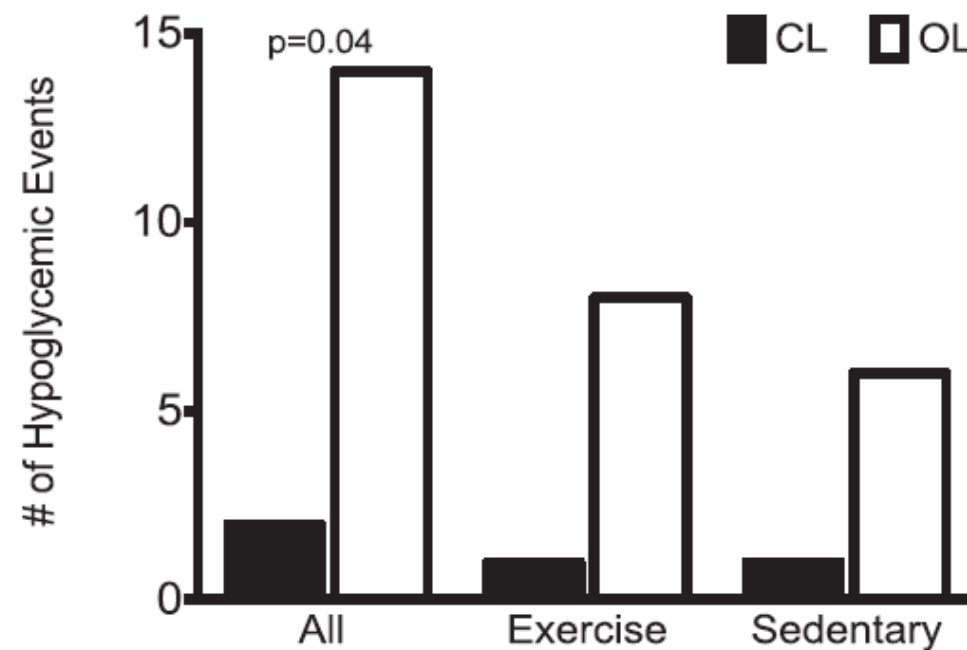
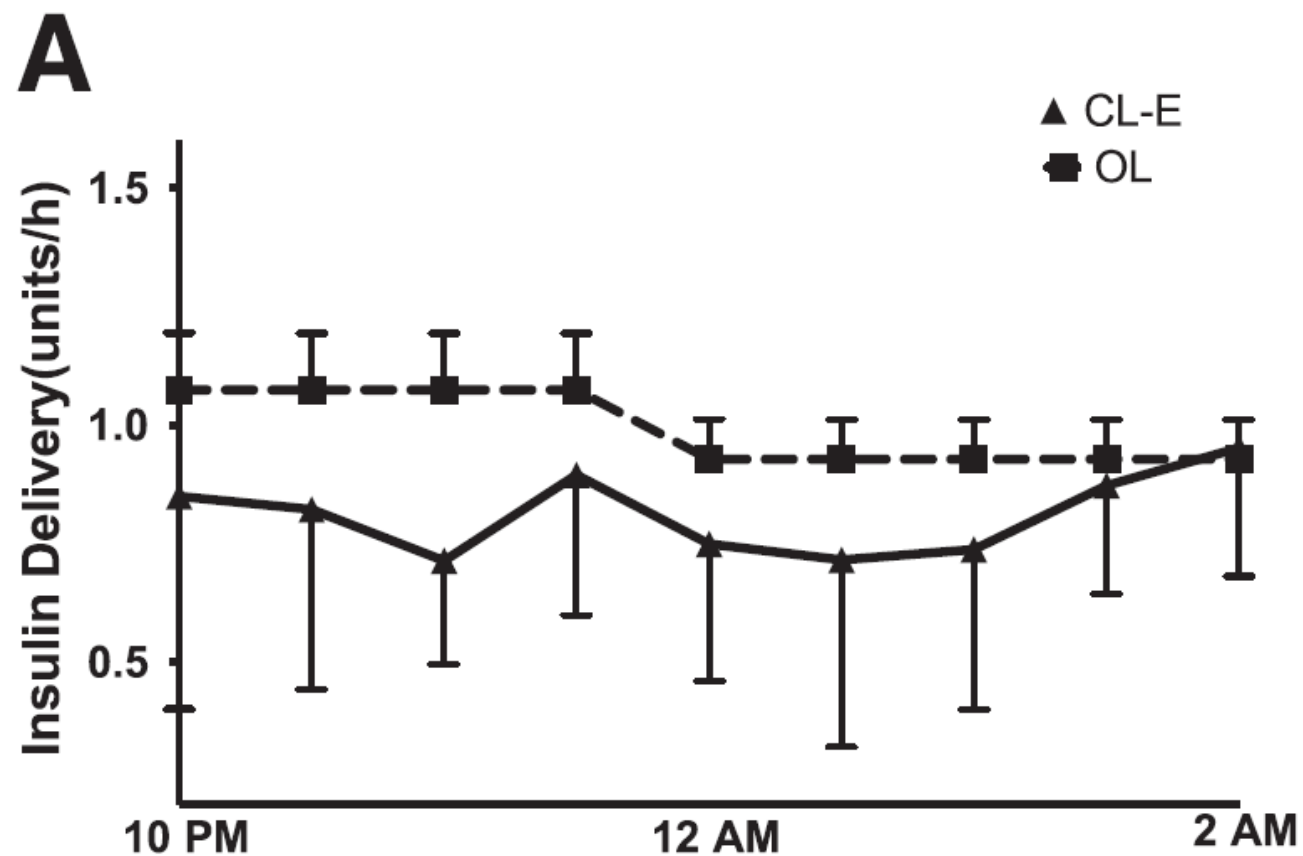


Figure 2—Episodes of overnight treatable hypoglycemia (reference blood glucose <60 mg/dL) during OL and CL.

Sherr et al (2013) *Diabetes Care* **36**:2909-2914

Closed loop overnight – insulin delivery



Sherr et al (2013) *Diabetes Care* **36**:2909-2914

Closed loop systems summary

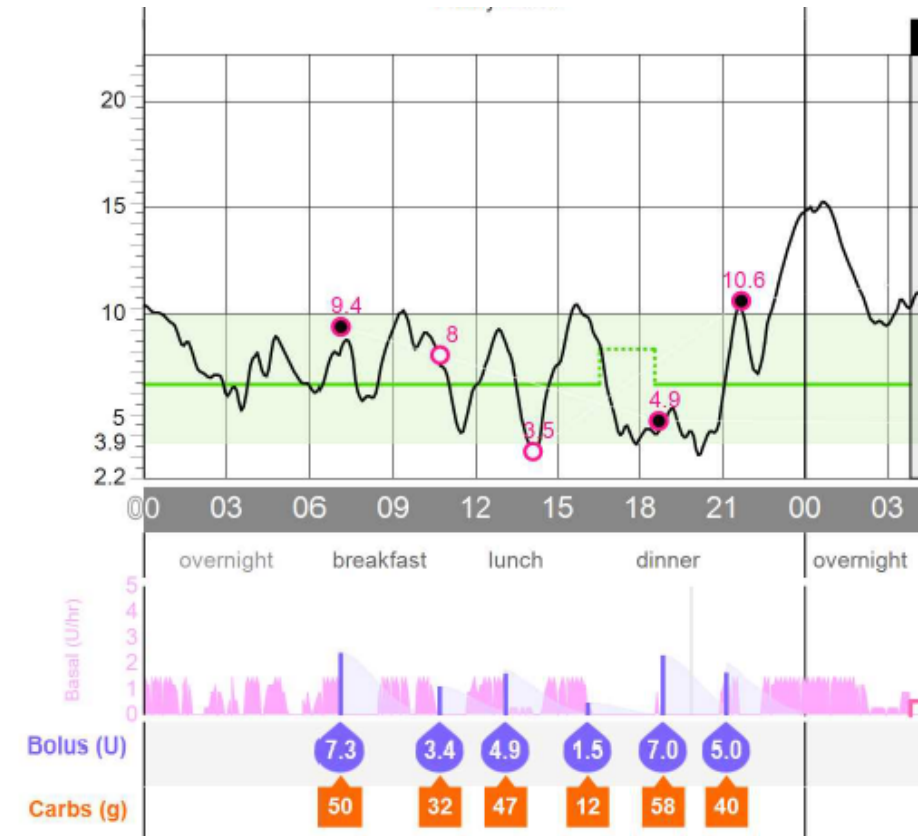
- For LGS systems it is recommended to follow standard insulin pump advice
- For HCL systems need to engage exercise modes 60-90 minutes prior to activity
- Carbohydrate replacement can still be guided by sensor glucose
- Beware excessive replacement causing additional insulin delivery due to rising glucose
- Helpful to prevent nocturnal hypoglycaemia
- Can be used in “open loop” mode:
 - TIR 80% people may be better with close loop overnight / open loop during the day
 - Experienced exercisers may open loop around exercise and closed loop after

670G

- Football 17:00 for 1 hours
- Last meal 12:30
- Weight 50kg
- 116g carbs after
- 80g carbs before bed
- ICE
 - Before
 - During
 - After

670G – RD

- Football 17:00 for 1 hours
 - Last meal 12:30 – no meal within 90 minutes
 - Small snack (12g) at 15:15 – still more than 90 mins
 - Temp target 15:30 for 2 hours
 - Weight 50kg = 8g for 20 mins
 - 50% reduction in carbs (58g) at 18:00 worked (ate 116g)
 - 50% reduction in carbs (40g) 21:00 was too much (ate 80g)
 - No auto correction (not 780G) to stop major rise 22:00-00:00
 - Basal increase catches up by 3am
-
- Next time keep 50% reduction at meal after but normal insulin for 21:00 supper



CAMAPS FX

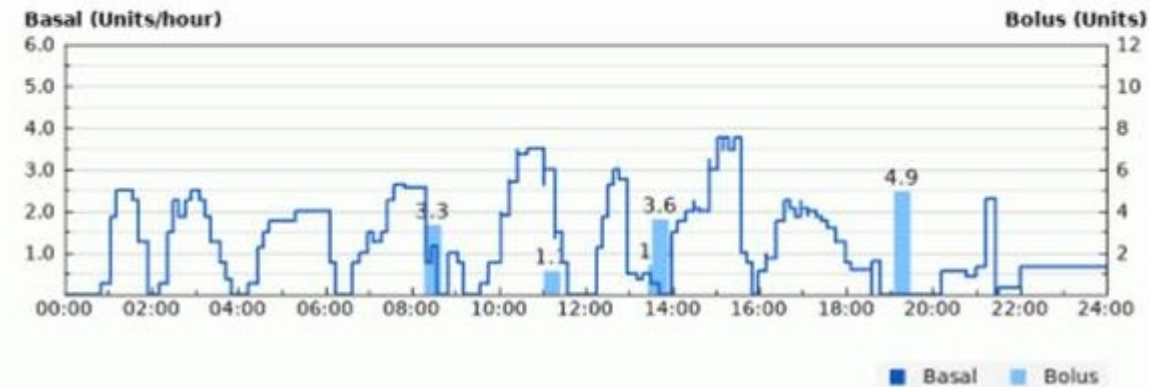
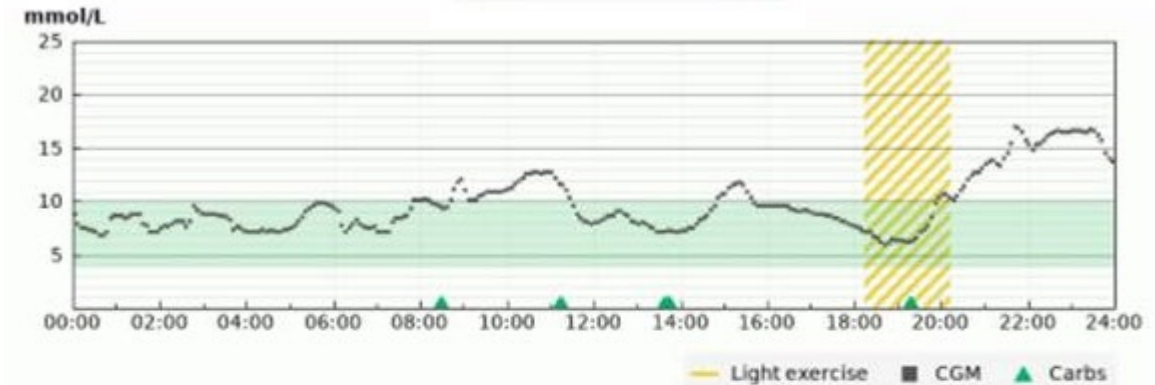
- Hockey 18:00 for 60 minutes
- Last meal 14:44
- Weight 60kg
- 116g carbs meal after
- ICE
 - Before
 - During
 - After

CAMAPS FX

- Hockey 18:00 for 60 minutes
- Last meal 14:44 – no meal within 90 minutes
- Ease off 18:00 – could have been earlier 16:30
- Weight 60kg = 10g for 20 mins – orange juice x 3
- 25% reduction in carbs (83g) at 19:17 too much off
 - (ate 116g)
- Basal caught up by 00:00
- Next time no reduction in post-meal carbs

Carbohydrates

Time	
08:28	30g
11:13	15g
13:37	20g
13:44	50g
19:17	83g

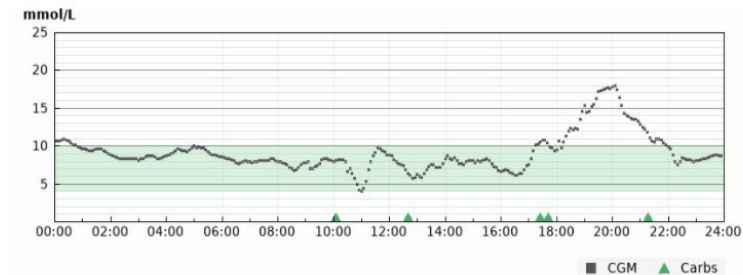
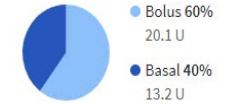
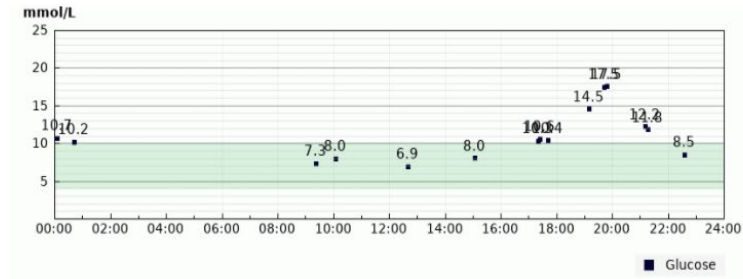


T-Slim x 2 Control IQ

- Jogging 16:00 for 1 hour
- Last meal 12:39 –
- Weight 50kg
- Only 40g carb snack after
- Bigger meal at 21:00
- ICE
 - Before
 - During
 - After

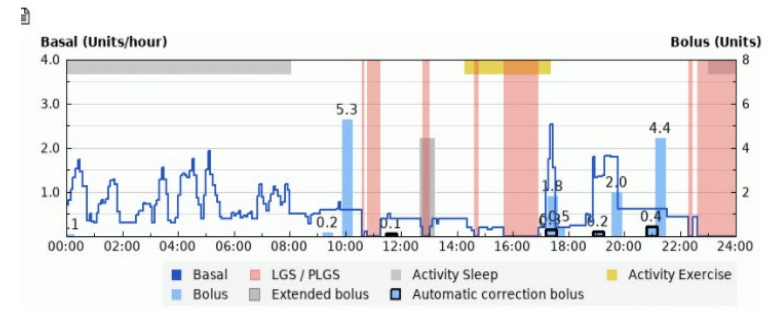
T-Slim x 2 Control IQ - LH

- Jogging 16:00 for 1 hour
- Last meal 12:39 - no meal within 90 mins
- Temp target 14:30 with exercise Insulin profile (-25%)
- Weight 50kg = 8g for 20 mins depending on arrows
- exercise Insulin profile (-25%) took off too much insulin at meal after
- Basal increase & auto correction gets back to target by 22:00
- Basal decrease catches prevents hypo 22:00-00:00
- Next time back to normal insulin profile after eating



Basal		Bolus		Expand
Time	U/h	Time	U	
00:04	0.813	00:06	0.09	
00:09	1.058	(Corr:	0.09)	
00:14	1.338	(IOB:	1.06)	
00:19	1.543	09:23	0.17	
00:24	1.744	(Corr:	0.17)	
00:29	1.468	(IOB:	0.16)	
00:34	1.144	10:04	5.30	
00:39	1.142	(Corr:	0.30)	
00:44	0.355	(Meal:	5.00)	
00:49	0.507	(IOB:	0.24)	

Carbohydrates	
Time	
10:04	35g
12:39	40g
17:25	40g
17:41	10g
21:17	40g



Thanks for your attention

PDF of slides are in the Chat