Table 3. Effect of mycoprotein on glucose and insulin levels.

Author/ Year	Aim of study	Study characteristics	No of participants	Study duration	Place of study	Procedure/ Intervention	Result/Outcome	Conclusion/ Remarks
(61)	To investigate the effect of acute glycemia and insulinemia on normal healthy people.	Crossover trial	19	4 weeks	England	Milkshake containing mycoprotein MYC 20g dry weight. V.s Control milkshakes	MYC group The initial value was 6.23 at 30 minutes, declining to 4.29 mmo/L at 120 minutes Control group: Initial glucose level was 5.7 at 30 minutes, declining to 4.54 mmo/L at 120 minutes Glycemia reduction: 13% MYC group: insulin levels were 406 declining to 182 pmol/L at 120 min Control group: Insulin levels were 330, declining to 145pmo/L at 120 minutes	Nutritional composition of mycoprotein is ideal and may be added to the diets of diabetic patients
(62)	To study the effect of mycoprotein on metabolic markers	Controlled parallel trial group	31	6 weeks	England	Intervention group: Mycoprotein-based diet (≥ 88 g wet; 21 g dry wt/day) Control group: animal-based diet.	No significant changes in both groups	Unclear results due to small sample size. So further work in large population is warranted
(57)	To determine if consuming an average portion of mycoprotein will lower post-prandial glucose and insulin levels and improve insulin resistance as compared to whey protein.	Randomized clinical trial	10	Nm	England	Intervention: 30 g mycoprotein Control: Whey protein	Significant reductions in insulin levels at 15, 30 and 45 minutes Glucose MYC Group: The incremental areas under the curve (IAUC) were 42.9 mmol/L/min Control group: the IAUC for whey protein was 55.3 mmol/L/min Insulin	Mucoprotein can play a role in protein homeostasis and could be useful in the prevention of type 2 diabetes.

							MYC Group: The IAUC for insulin was 4,034 mU/L/min Control group: The IAUC for whey protein was 5,834 mU/L/min. After consuming mycoprotein, the insulin IAUC was considerably reduced	
(42)	To test the effect of mycoprotein on metabolic markers	Randomized control trial *2	Part A: 36 Part B:14	180 minutes	London	Part A: Mycoprotein meal (44, 88, 132g wet weight) vs chicken-based meal Part B: Mycoprotein-based meal 132 g of wet weight) vs chicken-based meal.	**Glucose IAUC (mmol/min per liter)** Low 44g Chicken: 1019±13 Mycoprotein: 1006±14 Medium 88g Chicken: 983±13 Mycoprotein:992±9 High 132g Chicken: 1013±17 Mycoprotein: 976±14 **% Reduction of Insulin** High 132g 15 min: 41%, 30 min: 27%, 45 min: 20%, 60 min: 21% Medium 88 g 22 % at 15 min, 12 % at 30 min, 12 % at 45 min, 13 % at 60 min and 24 % at 90 min. No significant difference in glucose values	Mycoprotein significantly reduced insulin concentration as compared to chicken. However no significant reduction in glucose values.
(43)	To study the effect of mycoprotein consumption on acute postprandial hyperinsulinemia.	Randomized experimental trials *5 Single blinded Cross over design	15	240 minutes	England	Intervention group: Mycoprotein-based drink 20 g milk protein MYC20, 40 g: MYC40), or 60 g (MYC60) or 80 g (MYC80) boluses of mycoprotein. Control group: 20 g milk	**Glucose (mmo/l)** Fasting MLK20:5.5±0.1 MYC20: 5.4±0.2 MYC 40: 5.5±0.1 MYC 60:5.4±0.1 MYC 80:5.4±0.1 Late postprandial MLK20:5.2±0.1 MYC20: 5.2±0.1 MYC 40:5.3±0.1 MYC 60:5.3±0.1 MYC 80:5.4±0.1	Glucose levels showed some decline in the late postprandial phases after MYC ingestion, but a detailed statistical analysis was not included in the main study. For

						protein drink (MLK20),	When comparing postprandial insulin response as IAUC MYC20 was lower compared with all other condition	insulin MYC 20 was lowered as compared with other conditions.
(45)	To study the impact of nucleotide-rich mixed meal on postprandial serum glucose, and insulin responses.	Randomized control, double-blinded, crossover trial.	10	24 hours	England	Intervention: High nucleotide MYC meal. (H-NU) Control: MYC depleted mycoprotein meal/ (L-NU)	Significant effect of time peaking at 30 minutes Glucose: 6.2±0.2 and 6.1±0.2 mmol Insulin: 67±10 and 63±8 mU·L −1 for L-NU and H-NU respectively	Glucose tolerance test was indicative of the fact that blood glucose and serum insulin IUAC were not different between conditions. P>0.05)
(46)	To study how incorporating mycoprotein affected insulin sensitivity (IS) and glycemic control	Randomized parallel group trial	20	24 hours	England	Intervention group: MYC lunches Control group: meat/fish lunches Containing 1.2 g of protein per kg of body weight /day	**Serum insulin concentrations:** From 14.8±1·1 to 14.2±1·7 and from 12.3±2.4 to 12.7±1.7 mU/l in CON and MYC, respectively; P > 0·05). **Glucose concentration:** Habitual data (5·5 ±0·1) mmol/l in CON and 5·4±0·1) mmol/ in MYC	No changes between or within group in blood glucose and insulin response.

Table 4: Mycoprotein effect on serum uric acid levels and gut health

Effect of mycoprotein on gut health								
Author/ year	**Aim of study**	**Study characteristics**	**No of participants**	**Duration of study**	**Place of study**	**Procedure/ Intervention**	**Result/Outcomes**	**Conclusion/ Remarks**
(48)	The effects of replacing mycoprotein with highly processed red meat on gastrointestinal and cardiometabolic health.	Investigator-blind randomized crossover control trial	20	8 weeks	England	The study comprised of 3 phases Phase 1 (2 weeks) red and processed meat (Meat) Wash out (4 weeks) Phase 2 (2 weeks)	**Stool weight:** Phase 1: Significant decrease (-51.01 ± 13.40, P < 0.01) Phase 2: Non-significant increase (+32.63 ± 15.70g, P = 0.12) **Microbial composition:** **(**Change in relative	This work demonstrated an enhancement in the genus Lactobacilli following chronic mycoprotein consumption. mycoprotein may be a

						mycoprotein based foods participants consumed 240g (uncooked 2121 weight) of either red and processed meat products or equivalent weight of mycoprotein	abundance from baseline) Significant influences on number of genera *Lactobacillus spp.* (+0.02) *Roseburia spp* (-2.01) *Oscillibacter spp* . (+0.04)	beneficial alternative to meat in the context of gut health. However further larger scale human randomized trials are needed

Effect of mycoprotein on serum uric acid concentration

Author/ year	Aim of study	Study characteristics	No of participants	Study duration	Place of study	Procedure/ Intervention	Result/Outcome	Conclusion/ remarks
(43)	To study the effect of mycoprotein ingestion on blood uric acid in a dose response manner	Randomized, single-blind, cross-over design	15	240 minutes	England	Intervention group: Mass-matched bolus of mycoprotein MYC (20, 40, 60 or 80g) Control group: 20 g milk protein	**Fasting plasma uric acid concentration** similar in all conditions **Postprandial period:** MYC20: significant decrease at 150 min (77±4) MYC40- remained unaltered (85±7) MYC60- increased modestly by 30 to 150 min (86±5) MYC80- increase by 30 min, remaining elevated throughout the post parranda period (90±6) MIK20-(82±6)	The study suggested that moderate does of mycoprotein (≤40 g) does not modulate serum uric acid concentrations.
(44)	To investigate the impact of replacing mycoprotein with meat/fish (either low/high nucleotide content) during a one-week intervention on blood uric acid levels in healthy adults.	Randomized parallel group trial	20	7 days	England	Intervention group: nucleotide-depleted mycoprotein (LN-MYC; n = 10) nucleotide-rich mycoprotein (HN-MYC) Control Group: Meat/fish (CON; n = 10)	Constant serum uric acid concentration in the CON (∼296 µmol. L−1) and LN-MYC (∼282 µmol. L−1) groups In HN-MYC, serum uric acid concentrations steadily increased from baseline (295 ± 55 µmol. L−1) at 2 (402 ± 59 µmol. L−1; P < 0·05)	A high dietary nucleotide diet resulted in a sustained increase in blood uric acid levels. There was no effect on insulin sensitivity or glycemic control, however.

						With a total daily intake of (1·2 g per kg bm)		
(45)	To investigate how a nucleotide-rich mixed meal affected postprandial circulatory uric acid levels.	Randomized, controlled, double-blind, crossover trial	10	24hrs	England	Intervention: High nucleotide MYC meal. (H-NU) 8.83% of MYC dry weight Control: MYC depleted mycoprotein meal/ (L-NU) 1.96% of MYC dry weight	**Intervention (H-NU)** 12% increase from 284 ± 13 to 319 ± 12 µmol·L −1 after 210 min) **Control (L-NU)** Decreasing by 7% (from 279 ± 16 to 257 ± 14 µmol·L −1)	A nucleotide-rich mixed meal causes an increase in blood uric acid concentrations for around 12 hours before returning to normal after 24 hours.
(47)	The effect of twice-daily nucleotide-rich mixed-meal consumption on postabsorptive blood uric acid levels was studied for one week.	Randomized, controlled, parallel-group trial	20	7 days	England	Nucleotide rich meal, thrice daily, 7 d fully controlled eucaloric diet Intervention: High nucleotide MYC meal. (H-NU) 8.83% of MYC dry weight Control: MYC depleted mycoprotein meal/ (L-NU) 1.96% of MYC dry weight	Serum uric acid levels remained unchanged in low Diet group Increase in uric acid concentration in high group (from 295 ± 17 to 472 ± 29 µmol L^{-1} by day 6; $P < 0.05$)	According to the findings, consuming nucleotide mixed meals causes postabsorptive blood uric acid levels to rise over clinically tolerable limits.