Table S1 Select the best match of intermittent fasting approach for a prediabetes individual. Input: a prediabetes man, 60 years old, weight 103 kg, BMI 30 and basal fasting glucose of 8.1 mmol/L (145.8 mg/dL)

Intervention	Continues difference Random Forest
Diet Hi Carb	0.834
Diet Hi Mono	**0.988**
CER	0.846
IER	0.877
DMF	0.874
FESD	0.619
IECR	0.821
IECR+PF	0.711
IF100	0.947
IF70	0.715
DR70	0.858
CCR	0.779
ICR	0.851

Table S2 Select the best match of intermittent fasting approach for a prediabetes individual. Input: a prediabetes man, 58 years old, weight 106.3 kg, BMI 34.71 and basal fasting glucose of 5.61 mmol/L (101 mg/dL)

Intervention	Continues difference Random Forest
Diet Hi Carb	0.217
Diet Hi Mono	0.239
CER	0.245
IER	0.221
DMF	0.200
FESD	0.048
IECR	0.269
IECR+PF	0.199
IF100	0.292
IF70	0.124
DR70	0.243
CCR	**0.448**
ICR	0.190

Table S3: Different cutoff values for difference 15%

Normal values : 5.56 mmol/liter fasting glucose and 80 pmol/liter fasting insulin

Normal value HOMA-IR : 5.56 *****6 * 80 * 18 = 48038

Difference : 0.834 mmol/liter fasting glucose and 12 pmol/liter fasting insulin

HOMA-IR Difference: 7206

Fasting Glucose success : 24 out of 474

Fasting Glucose success, no control : 19 out of 413

HOMA-IR success : 150 out of 471

HOMA-IR success, no control : 126 out of 410

A

		Fasting Glucose				HOMA-IR			
		With control		No control		With control		No control	
Discrete difference above 15%.	J48	0.79	93%	0.82	96%	0.74	74%	0.73	74%
	LMT	0.90	94%	0.91	96%	0.83	75%	0.89	82%
	Random forest	0.90	95%	0.93	96%	0.82	76%	0.87	79%
	Logistic	0.82	95%	0.82	96%	0.83	76%	0.88	82%
Discrete difference above 15%.No interventions	J48	0.64	93%	0.73	94%	0.75	75%	0.74	73%
	LMT	0.91	95%	0.90	95%	0.82	74%	0.82	76%
	Random forest	0.91	95%	0.92	95%	0.82	76%	0.82	75%
	Logistic	0.90	95%	0.94	95%	0.83	77%	0.82	78%

B

		Fasting Glucose RANDOM				HOMA-IR RANDOM			
		With control		No control		With control		No control	
Discrete difference above 15%.	J48	0.45	95%	0.47	95%	0.50	74%	0.50	66%
	LMT	0.50	95%	0.50	95%	0.49	76%	0.49	70%
	Random forest	0.65	95%	0.56	95%	0.50	75%	0.49	69%
	Logistic	0.56	95%	0.57	95%	0.48	76%	0.49	70%
Discrete difference above 15%.No interventions	J48	0.45	93%	0.47	95%	0.50	76%	0.50	70%
	LMT	0.50	95%	0.50	95%	0.50	76%	0.50	71%
	Random forest	0.50	95%	0.60	95%	0.51	73%	0.53	68%
	Logistic	0.62	95%	0.68	95%	0.50	76%	0.51	70%

Table S4: Different cutoff values for difference 10%

Normal values : 5.56 mmol/liter fasting glucose and 80 pmol/liter fasting insulin

Normal value HOMA-IR : 5.56 *****6 * 80 * 18 = 48038

Difference : 0.556 mmol/liter fasting glucose and 8 pmol/liter fasting insulin

HOMA-IR Difference: 4803

Fasting Glucose success : 61 out of 474

Fasting Glucose success, no control : 52 out of 413

HOMA-IR success : 205 out of 471

HOMA-IR success, no control : 175 out of 410

A

		Fasting Glucose				HOMA-IR			
		With control		No control		With control		No control	
Discrete difference above 10%.	J48	0.67	85%	0.66	86%	0.70	69%	0.79	75%
	LMT	0.77	87%	0.75	88%	0.80	74%	0.89	79%
	Random forest	0.74	87%	0.76	88%	0.80	72%	0.87	79%
	Logistic	0.74	88%	0.75	88%	0.80	75%	0.88	78%
Discrete difference above 10%.No interventions	J48	0.49	87%	0.55	88%	0.71	71%	0.77	75%
	LMT	0.76	87%	0.76	87%	0.77	71%	0.84	76%
	Random forest	0.72	87%	0.73	87%	0.77	73%	0.87	79%
	Logistic	0.79	87%	0.78	86%	0.80	73%	0.88	78%

B

		Fasting Glucose RANDOM				HOMA-IR RANDOM			
		With control		No control		With control		No control	
Discrete difference above 10%.	J48	0.49	87%	0.48	87%	0.50	52%	0.56	56%
	LMT	0.59	87%	0.50	87%	0.60	56%	0.57	54%
	Random forest	0.56	87%	0.57	87%	0.58	57%	0.59	57%
	Logistic	0.58	87%	0.48	87%	0.60	57%	0.58	55%
Discrete difference above 10%.No interventions	J48	0.49	87%	0.48	87%	0.51	53%	0.58	57%
	LMT	0.60	87%	0.50	87%	0.60	59%	0.55	55%
	Random forest	0.53	84%	0.56	86%	0.55	56%	0.57	54%
	Logistic	0.57	87%	0.57	87%	0.60	59%	0.60	57%

Table S5: Different cutoff values for difference 20%

Normal values : 5.56 mmol/liter fasting glucose and 80 pmol/liter fasting insulin

Normal value HOMA-IR : 5.56 *****6 * 80 * 18 = 48038

Difference : 1.112 mmol/liter fasting glucose and 16 pmol/liter fasting insulin

HOMA-IR Difference: 9608

Fasting Glucose success : 10 out of 474

Fasting Glucose success, no control : 8 out of 413

HOMA-IR success : 119 out of 471

HOMA-IR success, no control : 99 out of 410

		Fasting Glucose				HOMA-IR			
		With control		No control		With control		No control	
Discrete difference above 20%.	J48	0.48	98%	0.56	98%	0.77	79%	0.76	77%
	LMT	0.92	98%	0.90	99%	0.85	81%	0.85	81%
	Random forest	0.85	98%	0.83	98%	0.86	81%	0.86	81%
	Logistic	0.74	88%	0.80	98%	0.84	81%	0.86	81%
Discrete difference above 20%.No interventions	J48	0.54	98%	0.40	98%	0.80	79%	0.77	79%
	LMT	0.88	98%	0.87	99%	0.85	81%	0.86	82%
	Random forest	0.70	98%	0.74	98%	0.86	79%	0.87	80%
	Logistic	0.87	98%	0.91	98%	0.86	81%	0.86	82%

Table S6: Random test for continuous difference

Fasting Glucose total : 474

Fasting Glucose total, no control : 413

HOMA-IR total : 471

HOMA-IR total, no control : 410

		Fasting Glucose		HOMA-IR	
		With control	No control	With control	No control
Continuous difference	Random Forest	0.51	0.51	0.36	0.46
Continuous difference random	Random Forest	-0.13	-0.088	0.017	-0.083

Table S7: Area Under Curve (AUC) and Accuracy of predicting fasting glucose or HOMA-IR difference.

Each cell in the table contains two lines. The upper line shows the AUC results while the lower line describes the accuracy results. Every line composed of 3 columns the left column shows the result of 10-fold test, the middle column shows the results of splitting 20% of the data as test dataset test while the right column (in parentheses) contains the training results.

		Fasting Glucose		HOMA-IR	
		With control	No control	With control	No control
Discrete difference	J48	0.66 0.61 (0.81) 65% 62% (69%)	0.67 0.78 (0.83) 67% 67% (69%)	0.68 0.6 (0.87) 70% 68% (85%)	0.65 0.7 (0.85) 68% 65% (84%)
	LMT	0.72 0.73 (0.77) 67% 64% (69%)	0.73 0.74 (0.78) 66% 64% (68%)	0.60 0.6 (0.62) 72% 69% (85%)	0.70 0.7 (0.72) 73% 77% (78%)
	Random forest	0.71 0.71 (0.82) 68% 66% (73%)	0.70 0.74 (0.76) 65% 67% (69%)	0.68 0.66 (0.85) 70% 68% (93%)	0.71 0.75 (0.87) 71% 70% (93%)
	Logistic	0.72 0.81 (0.88) 68% 66% (71%)	0.73 0.88 (0.88) 66% 69% (69%)	0.70 0.62 (0.74) 71% 67% (73%)	0.70 0.73 (0.74) 74% 76% (76%)
Discrete difference. No interventions	J48	0.61 0.60 (0.61) 63% 62% (66%)	0.63 0.82 (0.85) 65% 66% (66%)	0.57 0.58 (0.69) 68% 62% (76%)	0.54 0.61 (0.64) 68% 71% (78%)
	LMT	0.70 0.71 (0.72) 64% 62% (65%)	0.72 0.75 (0.77) 66% 65% (67%)	0.65 0.6 (0.73) 70% 69% (80%)	0.62 0.62 (0.64) 70% 74% (74%)
	Random forest	0.68 0.69 (0.77) 63% 62% (68%)	0.68 0.74 (0.76) 64% 64% (69%)	0.60 0.61 (0.78) 69% 65% (93%)	0.63 0.65 (0.8) 72% 69% (96%)
	Logistic	0.71 0.72 (0.74) 65% 61% (65%)	0.71 0.71 (0.72) 66% 65% (67%)	0.65 0.59 (0.66) 70% 66% (71%)	0.64 0.66 (0.78) 71% 75% (75%)
Discrete difference above 15%.	J48	0.79 0.64 (0.96) 93% 91% (98%)	0.82 0.92 (0.97) 96% 96% (98%)	0.74 0.65 (0.93) 74% 72% (89%)	0.73 0.81 (0.96) 74% 73% (92%)
	LMT	0.90 0.91 (0.94) 94% 92% (97%)	0.91 0.93 (0.97) 96% 94% (98%)	0.83 0.69 (0.74) 75% 72% (88%)	0.89 0.82 (0.82) 82% 81% (81%)
	Random forest	0.90 0.89 (1.0) 95% 93% (100%)	0.93 0.94 (0.98) 96% 96% (98%)	0.82 0.81 (1.0) 76% 75% (100%)	0.87 0.88 (1.0) 79% 76% (100%)
	Logistic	0.82 0.90 (0.96) 95% 92% (97%)	0.82 0.97 (0.97) 96% 97%(97%)	0.83 0.75 (0.87) 76% 72% (78%)	0.88 0.91 (0.92) 82% 84% (84%)
Discrete difference above 15%.No interventions	J48	0.64 0.61 (0.93) 93% 94% (96%)	0.73 0.92 (0.92) 94% 95%(95%)	0.75 0.7 (0.87) 75% 69% (83%)	0.74 0.8 (0.85) 73% 76% (83%)
	LMT	0.91 0.92 (0.93) 95% 92% (95%)	0.90 0.93 (0.95) 95% 94% (96%)	0.82 0.7 (0.9) 74% 74% (85%)	0.82 0.82 (0.84) 76% 81% (81%)
	Random forest	0.91 0.92 (1.0) 95% 94% (100%)	0.92 0.98 (1.0) 95% 95%(100%)	0.82 0.77 (1.0) 76% 72% (100%)	0.82 0.85 (1.0) 75% 73% (100%)
	Logistic	0.90 0.91 (0.93) 95% 91% (95%)	0.94 0.94 (0.95) 95% 94% (96%)	0.83 0.72 (0.84) 77% 73% (78%)	0.82 0.84 (0.86) 78% 82% (82%)
Continuous difference	Random Forest	0.51	0.51	0.36	0.46