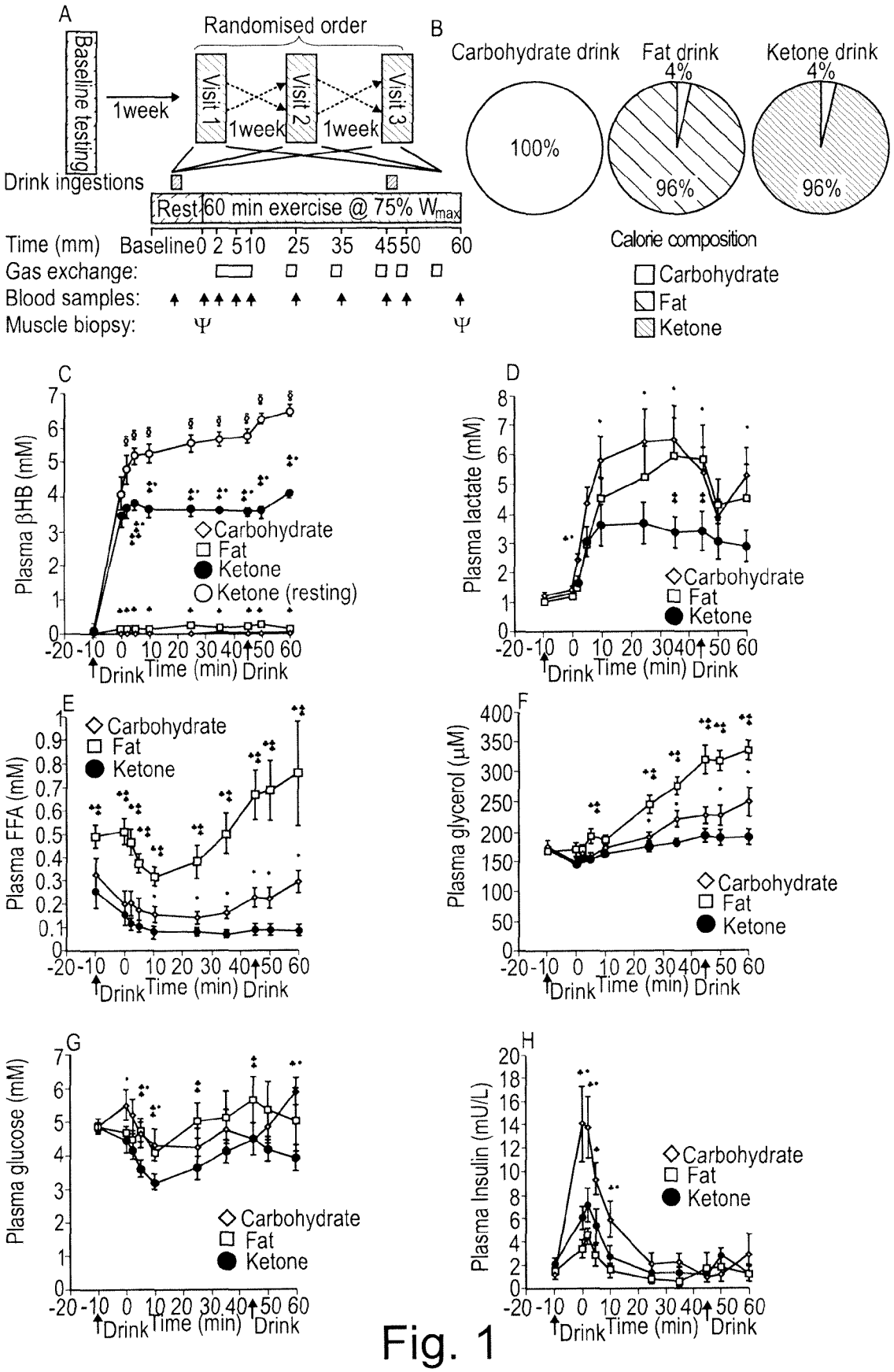

A
Baseline testing
1week
Randomised order
Visit 1
Visit 2
Visit 3
1week
1week
Drink ingestions
Rest
60 min exercise @ 75% Wmax
Time (mm) Baseline 0 2 5 10 25 35 45 50 60
Gas exchange:
Blood samples:
Muscle biopsy:
B
Carbohydrate drink
Fat drink
Ketone drink
4%
4%
100%
96%
96%
Calorie composition
Carbohydrate
Fat
Ketone
C
Plasma βHB (mM)
Carbohydrate
Fat
Ketone
Ketone (resting)
Drink
Time (min)
Drink
D
Plasma lactate (mM)
Carbohydrate
Fat
Ketone
Drink
Time (min)
Drink
E
Plasma FFA (mM)
Carbohydrate
Fat
Ketone
Drink
Time (min)
Drink
F
Plasma glycerol (μM)
Carbohydrate
Fat
Ketone
Drink
Time (min)
Drink
G
Plasma glucose (mM)
Carbohydrate
Fat
Ketone
Drink
Time (min)
Drink
H
Plasma Insulin (mU/L)
Carbohydrate
Fat
Ketone
Drink
Time (min)
Drink

Fig. 1

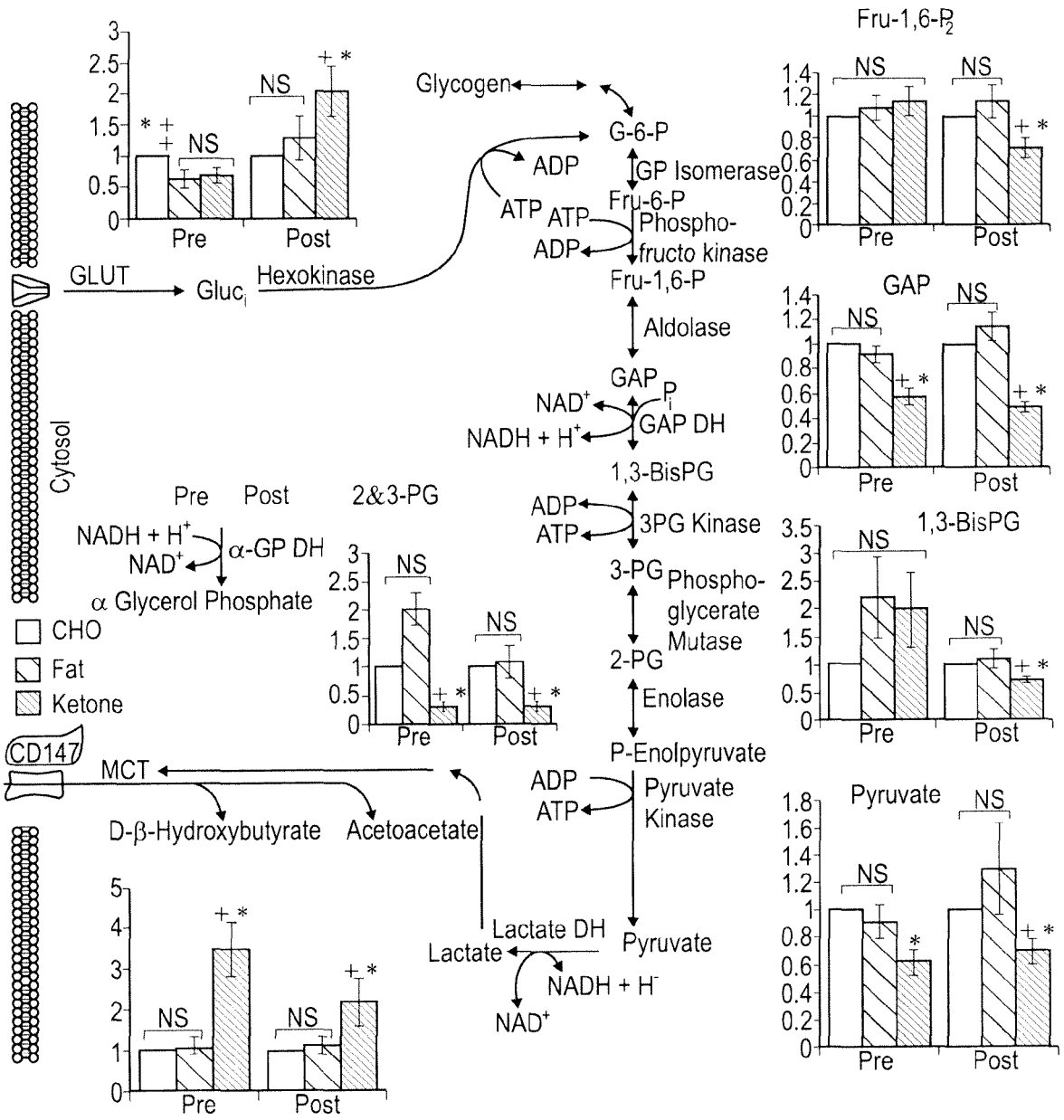

Glycogen
G-6-P
GP Isomerase
Fru-6-P
Phospho-fructo kinase
Fru-1,6-P
Aldolase
GAP
GAP DH
1,3-BisPG
3PG Kinase
3-PG
Phospho-glycerate Mutase
2-PG
Enolase
P-Enolpyruvate
Pyruvate Kinase
Pyruvate
Lactate DH
Lactate
GLUT
Gluc
Hexokinase
ADP
ATP
NAD+
NADH + H+
Pi
Cytosol
CHO
Fat
Ketone
CD147
MCT
D-β-Hydroxybutyrate
Acetoacetate
α-GP DH
α Glycerol Phosphate
2&3-PG
Fru-1,6-P2
GAP
1,3-BisPG
Pyruvate
NS
Pre
Post

Fig. 2

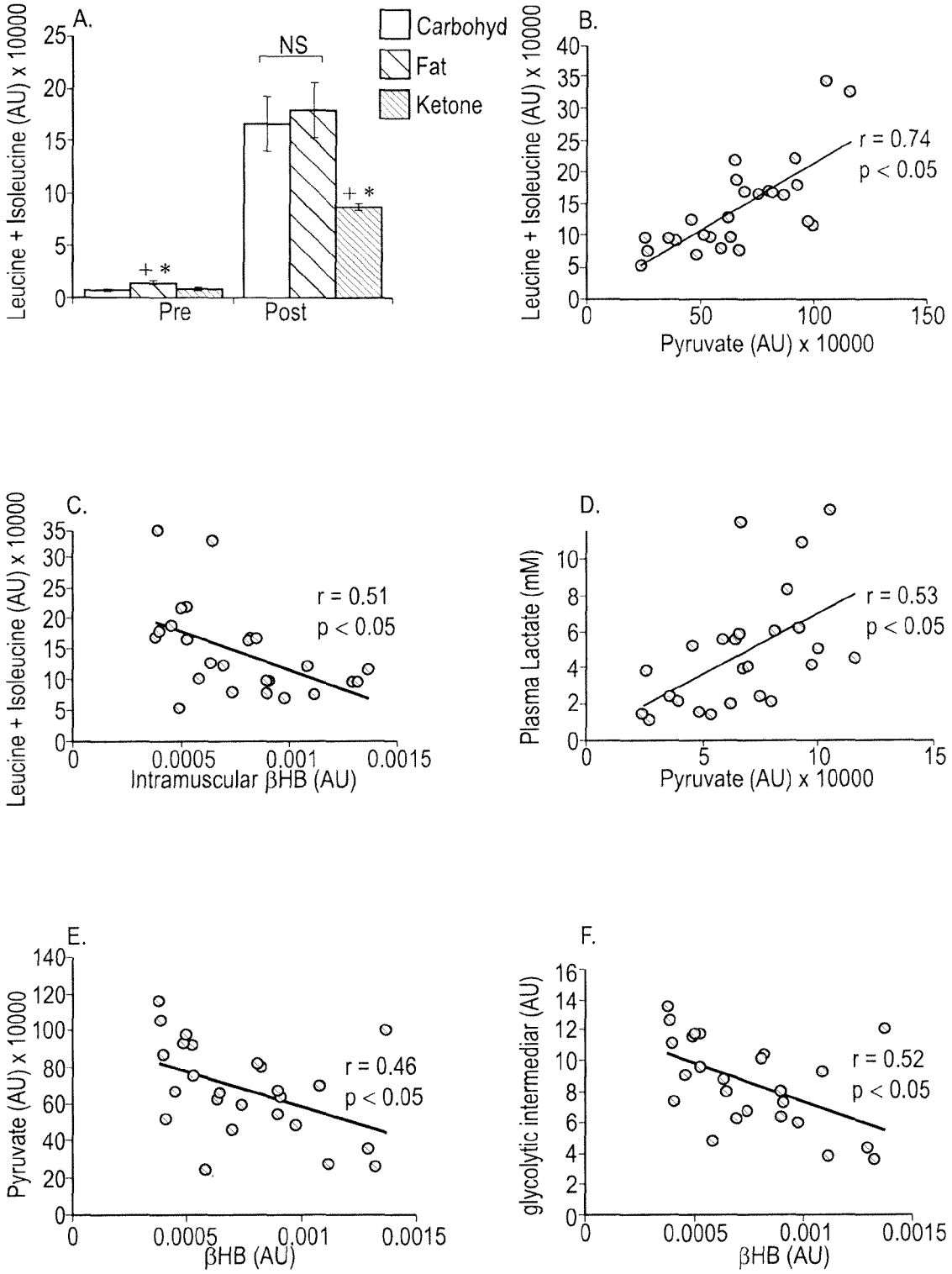

A.
Leucine + Isoleucine (AU) x 10000
Carbohyd
Fat
Ketone
NS
Pre
Post
B.
Leucine + Isoleucine (AU) x 10000
r = 0.74
p < 0.05
Pyruvate (AU) x 10000
C.
Leucine + Isoleucine (AU) x 10000
r = 0.51
p < 0.05
Intramuscular βHB (AU)
D.
Plasma Lactate (mM)
r = 0.53
p < 0.05
Pyruvate (AU) x 10000
E.
Pyruvate (AU) x 10000
r = 0.46
p < 0.05
βHB (AU)
F.
glycolytic intermediar (AU)
r = 0.52
p < 0.05
βHB (AU)

Fig. 3

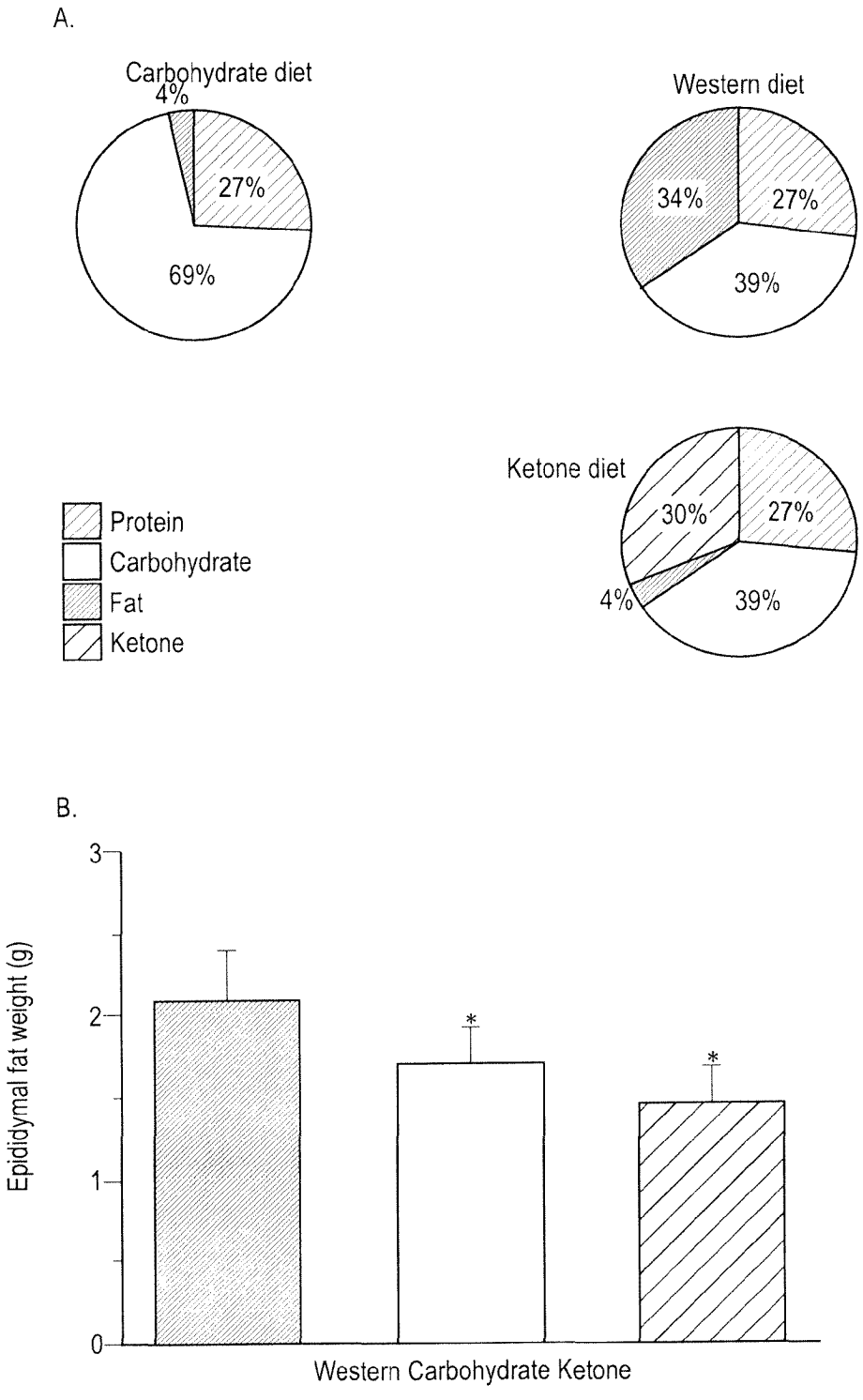

A.
Carbohydrate diet
4%
27%
69%
Western diet
34%
27%
39%
Ketone diet
30%
27%
4%
39%
Protein
Carbohydrate
Fat
Ketone
B.
Epididymal fat weight (g)
3
2
1
0
*
*
Western Carbohydrate Ketone

Fig. 4