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DCA – DANISH CENTRE FOR FOOD AND AGRICULTURE

Dissected fat deposits for evaluation of total body fat percent in mink (*Neovision vison*)

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Assessment of body fat content

- **Whole body chemical analysis**

- **Body Condition Score (BCS)**

Study of dissected fat deposits as predictors of total body fat content in mink

- **Perirenal fat**

- **Subcutaneous fat in the groin region**

Experimental setup

3 experimental lines (100 Females; 20 Males) (Brown mink)

- AL-line: Selection for November weight on *ad libitum* feeding

- RF-line: Selection for November weight on restricted feeding

- FF-line: Farm fed control line with no selection

   4-5 males and 5-6 females from each lines examined

Experimental setup

Registrations at pelting:

- **Weight at pelting**

- **Body length**

- **Subcutaneous fat in the groin region**

- **Perirenal fat of both kidneys**

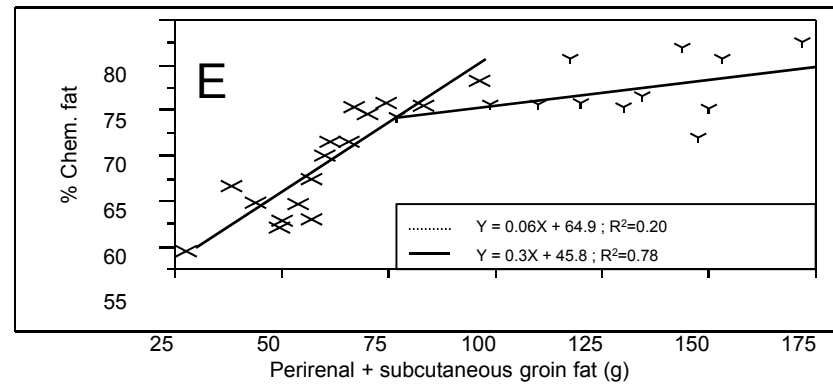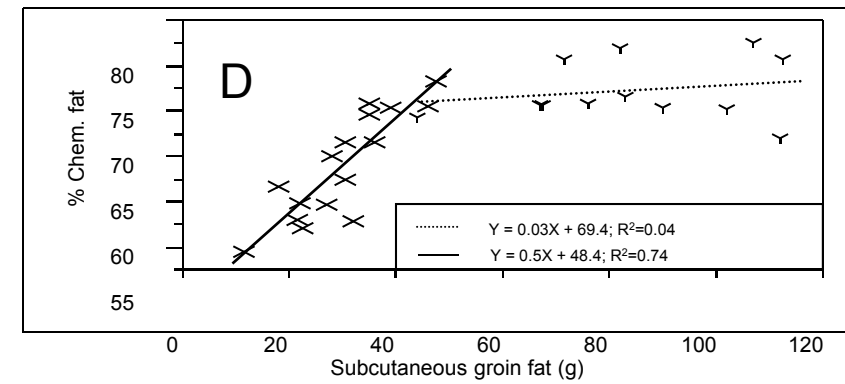- **Total fat = Perirenal fat + Subcutaneous groin fat**
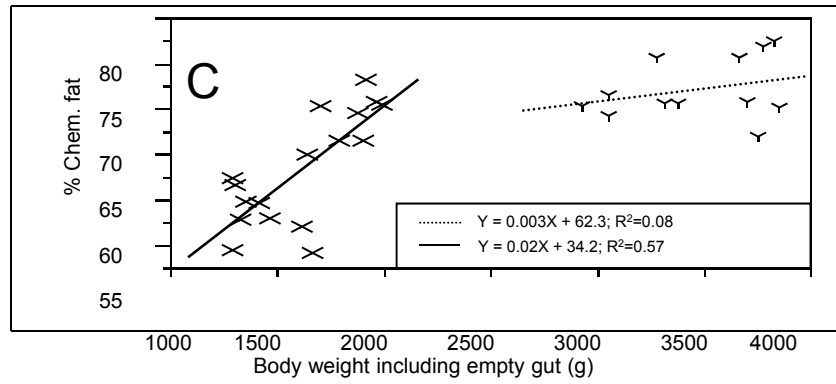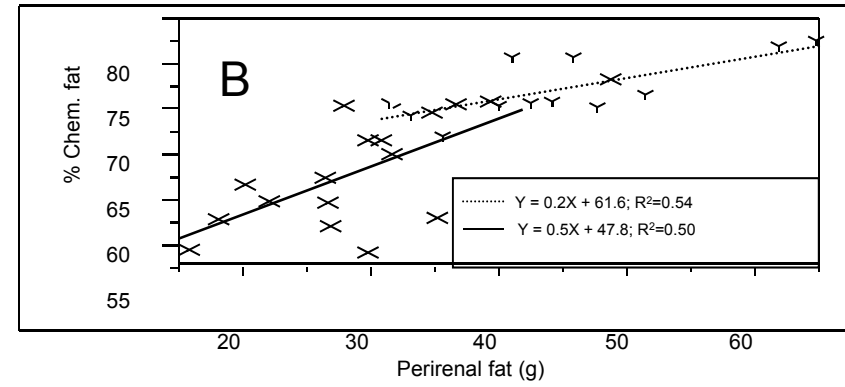
Experimental setup

Chemical analysis of whole bodies

- Carcasses

  - Autoclaved twice 120 min

  - Blended for 5 min

  - Freeze dried

- Fat

  - Soxhlet extraction

Percent chemical fat (*P*-values)

	Covariate				
Source of variance	Body length	Body weight	Perirenal fat (1	Subcutaneous groin fat (2	Total fat (1+2
Sex	0.53	0.14	0.10	0.07	0.12
Selection line	0.81	0.75	0.93	0.65	0.55
Covariate	0.07	0.0008	0.0002	<0.0001	<0.0001
Sex*covariate	0.02	0.01	0.09	<0.0001	0.0003

A

% Chem. fat

80
75
70
65
60
55

Body length (cm)
40   45   50   55

$Y = -0.3X + 90.0; R^2=0.06$
$Y = 2.4X - 40.2; R^2=0.33$

B

% Chem. fat

80
75
70
65
60
55

Perirenal fat (g)
20   30   40   50   60

$Y = 0.2X + 61.6; R^2=0.54$
$Y = 0.5X + 47.8; R^2=0.50$

C

% Chem. fat

80
75
70
65
60
55

Body weight including empty gut (g)
1000 1500 2000 2500 3000 3500 4000

$Y = 0.003X + 62.3; R^2=0.08$
$Y = 0.02X + 34.2; R^2=0.57$

D

% Chem. fat

80
75
70
65
60
55

Subcutaneous groin fat (g)
0   20   40   60   80   100   120

$Y = 0.03X + 69.4; R^2=0.04$
$Y = 0.5X + 48.4; R^2=0.74$

E

% Chem. fat

80
75
70
65
60
55

Perirenal + subcutaneous groin fat (g)
25   50   75   100   125   150   175

$Y = 0.06X + 64.9 ; R^2=0.20$
$Y = 0.3X + 45.8 ; R^2=0.78$

Conclusions

New procedure for estimating fat content in mink

- Destructive

- Easy – many animals can be examined at pelting

- Objective measures of fat deposits

- Sum of perirenal fat and subcutaneous fat in the grin region is the best predictor of total body fat – in females (R^2 = 0.78)