Heart rate of pet dogs: effects of overweight and exercise
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Background - In Australia, about 40% of pet dogs are overweight. In people, exercise has been shown to improve heart function. There is no information on body condition and level of exercise on heart rate in pet dogs.

Objective - To determine the effects of body condition and level of exercise on heart rate (HR) of pet dogs carrying out a three-stage exercise test.

Design - Owners of dogs in the Melbourne metropolitan area volunteered their pets for the study. The exercise test, carried out over a 21 m circuit of four ramps, consisted of three periods of 2 min exercise followed by 2 min rest. Circuit speeds varied with size: dogs less than 47 cm in height ran at 3, 4 and 5 km/h, those above 47 cm ran at 4, 6 and 8 km/h. A Polar heart rate monitor (Kempele, Finland) was used to record HR at rest, during exercise and during recovery. Body condition was assessed using the Purina body condition system.

Outcomes - Resting HR of smaller dogs (n=16) was significantly (P<0.05) greater, 135.4 ± 25.7 beats/min (bpm), that of larger dogs, 103.3 ± 20.3 bpm (n=32). Although overweight large dogs (n=20) had a significantly (P<0.05) greater HR (111.8 ± 20.3 bpm) than lean dogs (96.4 ± 18.2, n=28), recovery HR (average HR during recovery as a percentage of HR during exercise) of overweight dogs exercised every day was faster that of lean dogs with limited exercise.

Conclusions - Heart function of pet dogs can be affected by body condition and exercise.

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How effective are meal replacements for treating obesity?
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Background - Effective weight loss strategies are needed to reduce cardiovascular disease risk. Meal replacements as a weight loss strategy are widely used in the community however it is not known how effective they are outside a controlled clinical trial environment.

Objective - To compare the use of meal replacements (MR) twice a day with a structured low fat (C) weight loss diet on weight, lipids, inflammatory and thrombotic markers and vascular physiology.

Design - Randomised, parallel design in overweight volunteers with a triglyceride > 2 mmol/L.

Outcomes - Fifty-five subjects completed 3 and 6 months. After 3 months weight loss (Mean ± SEM) was 6.0 ± 4.2 kg (MR) and 6.6 ± 3.4 kg (C group) (P<0.001) with no differences between the groups. At 6 months weight loss was 9.0 ± 6.9kg (MR) and 9.2 ± 5.1kg (C). At 12 weeks triglycerides fell significantly in C (0.48 mmol/L or 25%) but not in MR (4%) (P<0.05 between diets). There was no difference at 6 months. Inflammatory markers at 6 months: CRP decreased by 20% (P<0.02) in MR with no change in C (P=0.002 between diets), no change in IL6 was noted. Fibrinolytic factors at 6 months: tPA fell in both groups by 20-26% (P<0.001), PAI-1 fell only in the C group 28% (P=0.001), [P=0.025 between diets]. Adhesion molecules at 6 months: sICAM1 fell by 10% in both groups (P<0.001), no changes in sVCAM1. Flow mediated dilatation did not change in either group but pulse wave velocity improved from 7.52± 2.49 m/s to 6.25 ±1.58 in MR (P<0.05). The change in C was similar 7.41 ± 3.22 to 6.32 ± 1.38 m/sec but was not significant because of greater baseline variation.

Conclusions - Meal replacements are as effective as a structured low fat weight diet for weight loss which is maintained to 6 months. Weight loss is associated with lower triglyceride, circulating adhesion molecules and pulse wave velocity.