

 **CARDIAC FUNCTION AND HEART FAILURE**

**TREATMENT WITH A HIGH UNSATURATED FAT DIET, COMPARED WITH HIGH SATURATED FAT DIET OR LOW FAT DIET, INCREASES FAT PAD MASS, FREE FAT ACIDS LEVELS, AND MORTALITY IN CARDIOMYOPATHIC HAMSTERS**

ACC Poster Contributions

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**Background:** The optimal fat intake for heart failure patients is not known. Mitochondrial dysfunction occurs in heart failure, and data from rats suggest this may be prevented by a diet high in saturated fat (SF). We compared high fat diets rich in SF or unsaturated fat (UF) to a low fat diet.

**Methods:** Cardiomyopathic hamsters (CMH) (Bio T0-2, 6 wks old) were fed standard chow (15% energy as fat) or a high fat diet (45% fat) consisting of UF (18:1n-6, 18:2n-6, 18:3n-3) or SF (16:0, 18:0). 30 hamsters were assigned to each diet to assess mortality. Subgroups underwent echo exams and were sacrificed at 30 wks to measure mitochondrial function. Normal hamster on the standard low fat diet served as controls.

**Results:** Diet did not affect body or LV mass, or LV ejection fraction. Mitochondrial yield and respiratory function were impaired in CMH vs. healthy control hamsters. Mitochondrial respiration, coupling and Ca<sup>2+</sup>-induced permeability transition pore opening were not different among CMH groups. On the other hand, the UF fat diet increased fat pad mass (P<0.05) compared to the other two diets. Plasma free fatty acids levels were elevated with the UF diet compared to the low fat diet (p<0.05). Importantly, mortality was lower in animals fed the high SF diet compared to the UF diet (p<0.05).

**Conclusion:** Treatment with a diet high in UF increased mortality compared to a low fat diet or SF in CMH, but this effect was not due to improvement in mitochondrial function, suggesting novel unidentified mechanisms are involved.

