

# **Dietary Fatty Acids and Lipid Profiles in a Cohort of Young Adults**

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# Dietary Fats

- One of three key macronutrients
  - Energy production/storage
  - Insulation
  - Messengers
- Dietary fats in form of fatty acids<sup>1</sup>
  - Saturated FA - animal source
  - Monounsaturated FA - plant source
  - Polyunsaturated FA – essential

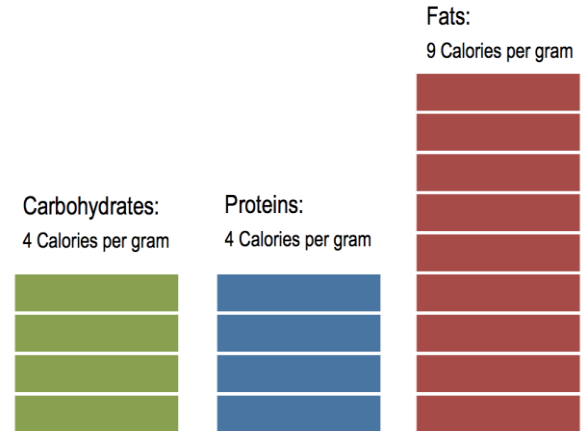


<sup>1</sup> Caballero, M. K., et al. Aquaculture 214.1 (2002): 253-271

# Effects of Overconsumption of Dietary Fat

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- Overconsumption or improper intake → energy imbalance
- Increased risk of obesity and related diseases
  - Dyslipidemia
  - Central adiposity
  - Atherosclerosis
- Not all fats are the same
  - Saturated fats = increased risk of dyslipidemia



# Lipids

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- Triglycerides
- Total Cholesterol
  - High Density Lipoprotein (HDL)
  - Low Density Lipoprotein (LDL)

# Research in Younger Populations

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- Lasting impact into late adulthood<sup>2</sup>
- Research needs to happen before diagnosis!
- Prevention of diseases via healthier lifestyle essential

<sup>2</sup>Nicklas T. A., Baranowski T., Cullen K. W., Berenson G. (2013)

# Objective

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- To determine associations between dietary fat intake and lipid composition
  - cholesterol and lipoprotein levels
- Hypothesis: SFA intake is associated with elevated levels of TC and LDL while MUFA and PUFA intake is associated with higher HDL level

# Methods

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- Cross-sectional study
- Fasting blood sample and food-frequency questionnaire.
- Fat intake was expressed as a % of total calories.
- Regression analysis used to determine associations between different types of FA and lipid cholesterol levels

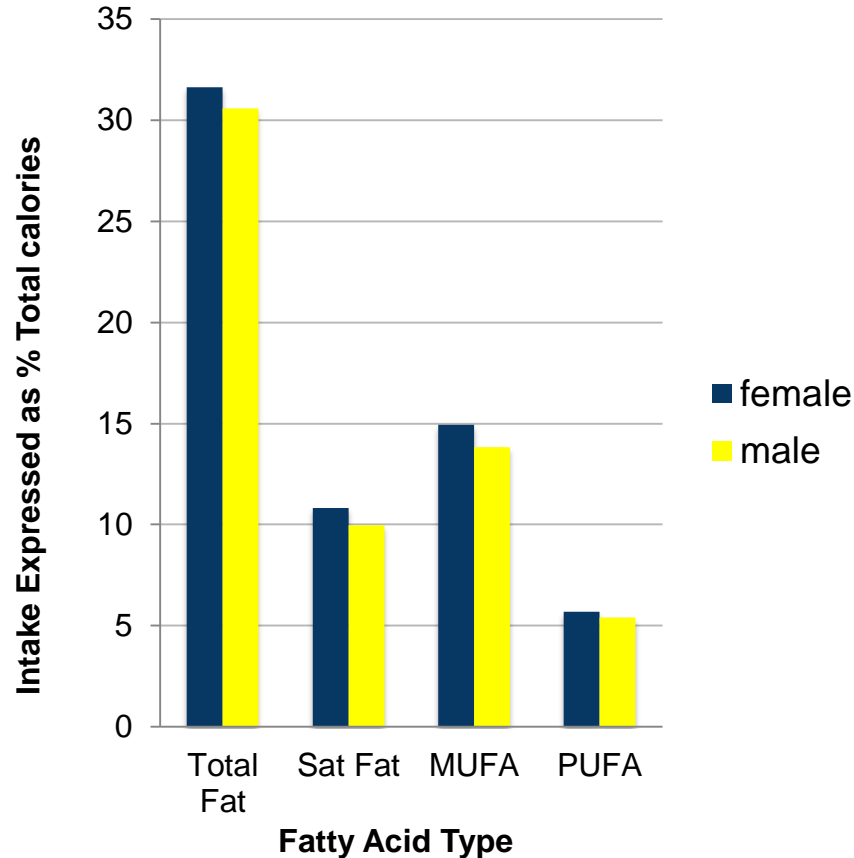
# Descriptive Characteristics of Sample.

|     | <b>Whole Sample</b><br>( <i>n</i> =70) | <b>Females</b><br>( <i>n</i> =35) | <b>Males</b><br>( <i>n</i> =35) |
|-----|--|-----------------------------------|---------------------------------|
|     | Mean ± SD                              |                                   |                                 |
| Age | 25.6 ± 5.1                             | 26.0 ± 5.1                        | 24.5 ± 4.9                      |
| BMI | 26.6 ± 4.4                             | 25.8 ± 4.49                       | 27.2 ± 4.23                     |
| TC  | 148.6 ± 26.1                           | 138.9 ± 25.0                      | 157.8 ± 24.9                    |
| TG  | 74.9 ± 30.1                            | 73 ± 28.5                         | 71.8 ± 20.2                     |
| HDL | 56.4 ± 15.5                            | 48.7 ± 10.0                       | 65.1 ± 15.6                     |
| LDL | 80.0 ± 18.4                            | 80.6 ± 17.7                       | 79.1 ± 20.2                     |

BMI = body mass index; TC = total cholesterol; TG = triglyceride; HDL = high density lipoprotein; LDL = low density lipoprotein.  
Lipids measured in mg/dl.



# Comparison of Dietary Fatty Acid Intake by Sex



# Results

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- SFA intake significantly associated with TC ( $P=0.02$ ,  $\beta=2.19$ ), and LDL ( $P=0.04$ ,  $\beta=1.57$ ).
- PUFA intake significantly associated with higher HDL levels ( $P=0.03$ ,  $\beta=0.07$ ).
- MUFA intake **not** associated with any outcomes.

# Conclusion

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- SFA intake significantly associated with increased TC and LDL
  - Reduced intake of foods high in SFA
- Increased intake of PUFA will elevate HDL levels.
- Females significantly lower TC and HDL levels, compared to males.
  - physical activity
  - age
  - Ethnicity
  - genetics.
- More research is needed in this age range

# Acknowledgments

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