# Oxepa<sup>®</sup> Publications

### **Clinical Research Publications**

- 1. Gadek JE, DeMichele SJ, Karlstad MD, et al. Effect of enteral feeding with eicosapentaenoic acid, gamma-linolenic acid, and antioxidants in patients with acute respiratory distress syndrome. *Crit Care Med.* 1999;27:1409-1420.
- 2. Pacht ER, DeMichele SJ, Nelson JL, et al. Enteral nutrition with eicosapentaenoic acid, gamma-linolenic acid, and antioxidants reduces alveolar inflammatory mediators and protein influx in patients with acute respiratory distress syndrome. *Crit Care Med.* 2003;31:491-500.
- 3. Nelson JL, DeMichele SJ, Pacht ER, et al. Effect of enteral feeding with eicosapentaenoic acid, gamma-linolenic acid, and antioxidants on antioxidant status in patients with acute respiratory distress syndrome. *JPEN J Parenter Enteral Nutr.* 2003;27:98-104.
- 4. Kalantar-Žadeh K, Braglia A, Chow J, et al. An anti-inflammatory and antioxidant nutritional supplement for hypoalbuminemic hemodialysis patients: A pilot/feasibility study. *J Ren Nutr.* 2005;15:318-331.
- Singer P, Theilla M, Fisher H, et al. Benefit of an enteral diet enriched with eicosapentaenoic acid and gamma-linolenic acid in ventilated patients with acute lung injury. *Crit Care Med.* 2006;34:1033-1038.
- 6. Pontes-Arruda A, Aragao AM, Albuquerque JD. Effects of enteral feeding with eicosapentaenoic acid, gamma-linolenic acid and antioxidants in mechanically ventilated patients with severe sepsis and septic shock. *Crit Care Med.* 2006;34:2325-2333.
- Theilla M, Singer P, Cohen J, Dekeyser F. A diet enriched in eicosapentanoic acid, gammalinolenic acid and antioxidants in the prevention of new pressure ulcer formation in critically ill patients with acute lung injury: A randomized, prospective, controlled study. *Clin Nut.* 2007;26(6):752-7.
- 8. Mayes T, Gottschlich MM, Kagan RJ. An evaluation of the safety and efficacy of an antiinflammatory, pulmonary enteral formula in the treatment of pediatric burn patients with respiratory failure. *J Burn Care Res.* 2008 Jan-Feb;29(1):82-8.
- 9. Pontes-Arruda A, DeMichele S, Seth A, Singer P. The use of an inflammation-modulating diet in patients with acute lung injury or acute respiratory distress syndrome: a meta-analysis of outcome data. *JPEN J Parenter Enteral Nutr.* 2008;32:596-605.

# **Clinical Research Abstracts**

- Gadek J, DeMichele S, Karlstad M, et al. Specialized enteral nutrition improves clinical outcomes in patients with or at risk of acute respiratory distress syndrome (ARDS): A prospective, blinded, randomized, controlled multicenter trial. *Am J Respir Crit Care Med.* 1998;157:A677.
- Gadek J, DeMichele S, Karlstad M, et al. Enteral nutrition with eicosapentaenoic acid (EPA), gamma-linolenic acid (GLA) and antioxidants reduces pulmonary inflammation and new organ failures in patients with acute respiratory distress syndrome (ARDS). *Chest.* 1998;114:277S.
- Pacht E, Nelson J, DeMichele S, et al. Specialized enteral nutrition decreases lung permeability and improves oxygenation in patients with acute respiratory distress syndrome (ARDS). *Am J Respir Crit Care Med.* 1999;159:A694.
- 4. Gadek J, DeMichele S, Nelson J, et al. Specialized enteral nutrition, Oxepa<sup>™</sup>, suppresses intrapulmonary inflammatory mediators in patients with acute respiratory distress syndrome (ARDS). *Crit Care Med.* 1999; 27:A125.
- Nelson JL, DeMichele SJ, Wennberg AK, Enteral Nutrition in ARDS Study Group. Specialized enteral nutrition (Oxepa<sup>™</sup>) restores plasma antioxidant vitamins in patients with acute respiratory distress syndrome (ARDS). *Chest.* 2000;118:154S.
- 6. Sevier B: Outcomes management using proactive nutrition support improved outcomes in patients with or at risk for acute lung injury/acute respiratory distress syndrome. *J Am Diet Assoc.* 2001;101(suppl 1):A30.
- 10. Tehila M, Gibstein L, Gordgi D, et al. Enteral fish oil, borage oil and antioxidants in patients with acute lung injury (ALI). *Clin Nutr.* 2003;22(suppl 1):S20.

- 11. Mayes T, Gottschlich M, Carman B, et al. An evaluation of the safety and efficacy of an antiinflammatory, pulmonary enteral formula in the treatment of pediatric burn patients with respiratory failure. *Nutr Clin Pract.* 2005;20:130-131.
- 12. Pontes-Arruda A. The effects of enteral feeding with eicosapentaenoic acid, gamma-linolenic acid and antioxidants in patients with sepsis. *Crit Care.* 2005;9(suppl 1):P363.
- Elamin EM, Hughes LF, Drew D. Effect of enteral nutrition with eicosapentaenoic acid (EPA), gamma-linolenic acid (GLA), and antioxidants reduces alveolar inflammatory mediators and protein influx in patients with acute respiratory distress syndrome (ARDS). *Chest.* 2005;128:225S.
- 14. Aragao AM, Albuquerque JD, Pontes-Arruda A. Enteral feeding with eicosapentaenoic acid and gamma-linolenic acid as a new strategy to reduce mortality and improve outcomes in patients with severe sepsis and septic shock. *Crit Care Med.* 2005;33:A9.
- 15. Nadkarni V, DeMichele S, Goldstein B, et al. Safety of an enteral formula enriched with eicosapentaenoic acid and gamma-linolenic acid in critically ill children with acute lung injury. *Crit Care Med.* 2005;33:A99.
- 16. Jacobs B, Shanley T, Page K, et al. Bronchoalveolar lavage inflammatory characteristics of children with ARDS. *Crit Care Med.* 2005;33:A11.
- 17. Jacobs B, Nadkarni V, Goldstein B, et al. Clinical characteristics and outcome in children with ARDS. *Crit Care Med.* 2005;33:A4.
- Morán V, Grau T, García-de-Lorenzo A, et al. Effect of an enteral feeding with eicosapentaenoic and gamma-linolenic acids on the outcome of mechanically ventilated critically ill septic patients. *Crit Care Med.* 2006;34:A70.
- 19. Pontes-Arruda A, DeMichele S, Seth A, et al. Enteral nutrition with eicosapentaenoic acid (EPA), gamma-linolenic acid (GLA) and antioxidants in critical illness: A meta-analysis evaluation of outcome data. *Crit Care Med.* 2006;34:A95.

### **Preclinical Research Publications**

- 1. Murray MJ, Kumar M, Gregory TJ, et al. Select dietary fatty acids attenuate cardiopulmonary dysfunction during acute lung injury in pigs. *Am J Physiol.* 1995;269:H2090-H2099.
- 2. Palombo JD, DeMichele SJ, Lydon EE, et al. Rapid modulation of lung and liver macrophage phospholipid fatty acids in endotoxemic rats by continuous enteral feeding with n-3 and gamma-linolenic fatty acids. *Am J Clin Nutr.* 1996;63:208-219.
- 3. Mancuso P, Whelan J, DeMichele SJ, et al. Effects of eicosapentaenoic and gamma-linolenic acid on lung permeability and alveolar macrophage eicosanoid synthesis in endotoxic rats. *Crit Care Med.* 1997;25:523-532.
- 4. Palombo JD, DeMichele SJ, Lydon E, et al. Cyclic vs continuous enteral feeding with omega-3 and gamma-linolenic fatty acids: Effects on modulation of phospholipid fatty acids in rat lung and liver immune cells. *JPEN J Parenter Enteral Nutr.* 1997;21:123-132.
- 5. Mancuso P, Whelan J, DeMichele SJ, et al. Dietary fish oil and fish and borage oil suppress intrapulmonary proinflammatory eicosanoid biosynthesis and attenuate pulmonary neutrophil accumulation in endotoxic rats. *Crit Care Med.* 1997;25:1198-1206.
- Palombo JD, DeMichele SJ, Boyce PJ, et al. Metabolism of dietary alpha-linolenic acid vs. eicosapentaenoic acid in rat immune cell phospholipids during endotoxemia. *Lipids*. 1998;33:1099-1105.
- 7. Palombo JD, DeMichele SJ, Boyce PJ, et al. Effect of short-term enteral feeding with eicosapentaenoic and gamma-linolenic acids on alveolar macrophage eicosanoid synthesis and bactericidal function in rats. *Crit Care Med.* 1999;27:1908-1915.
- Murray MJ, Kanazi G, Moukabary K, et al. Effects of eicosapentaenoic and gamma-linolenic acids (dietary lipids) on pulmonary surfactant composition and function during porcine endotoxemia. *Chest.* 2000;117:1720-1727.

# Preclinical Research Abstracts

 Kumar M, DeMichele S, Kanazi G, et al. Eicosapentaenoic and gamma-linolenic acid enriched diets attenuate pulmonary dysfunction in endotoxic pigs. *Crit Care Med.* 1992;20:S18.

- 2. Murray MJ, DeMichele SJ, Kanazi G, et al. The effects of eicosapentaenoic (EPA) and gamma-linolenic acid (GLA) on surfactant composition and function and pulmonary compliance during porcine endotoxemia. *Am Rev Respir Dis.* 1993;147:A988.
- Kumar M, DeMichele SJ, Gregory TJ, et al. The effects of diets enriched in eicosapentaenoic (EPA) and gamma-linolenic acid (GLA) on pulmonary gas exchange and oxygen delivery in pigs with acute lung injury. *Am Rev Respir Dis.* 1993;147:A358.
- DeMichele SJ, Gregory TJ, Kumar M, et al. The effects of diets enriched in eicosapentaenoic (EPA) and gamma-linolenic acid (GLA) on pulmonary gas exchange and oxygen delivery in pigs with acute lung injury. Presented at the Ohio Society for Parenteral and Enteral Nutrition, April 1993.
- 5. Palombo JD, DeMichele SJ, Lydon E, et al. Rapid displacement of arachidonic acid (AA) from rat macrophage membranes during endotoxemia with enteral formulations containing eicosapentaenoic (EPA) and gamma-linolenic (GLA) polyunsaturated fatty acids (PUFA). *JPEN J Parenter Enteral Nutr.* 1994;18:23S.
- Palombo JD, DeMichele SJ, Lydon E, et al. Short-term enteral nutrition containing eicosapentaenoic (EPA) and gamma-linolenic (GLA) acids rapidly displaces arachidonic acid (AA) from rat alveolar macrophage membranes and lung tissue phospholipids (PL) during endotoxemia. *Am J Respir Crit Care Med.* 1994;149:A234.
- 7. Karlstad MD. Dietary fish and borage oil attenuate endotoxin induced lung permeability in rats. *Am J Respir Crit Care Med.* 1994;149:A1037.
- 8. Karlstad MD, Gregory TJ, DeMichele S. Anti-inflammatory therapy for acute lung injury (ALI): Role of gamma-linolenic (GLA) and eicosapentaenoic (EPA) acids. *Inform.* 1995;6:520.
- Palombo JD, DeMichele SJ, Lydon E, et al. Modulation of rat alveolar macrophage (AM) phospholipid (PL) fatty acids during cyclic vs continuous enteral feeding. Am J Respir Crit. Care Med 1995;151:A485.
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- 12. Mancuso P, Whelan J, Snider CC, et al. Effect of dietary fish (FO) and fish and borage oil (FB) on bronchoalveolar lavage fluid (BALF), PGE2, TNF-alpha, MIP-2, and lung polymorphonuclear cell (PMN) sequestration in endotoxic rats. *Shock.* 1996;5:57.
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- Palombo JD, DeMichele SJ, Lydon EE, et al. Cyclic vs continuous enteral feeding: Effects on modulation of rat liver immune cell phospholipid (PL) fatty acids (FA) *in vivo*. JPEN J Parenter Enteral Nutr. 1997;21:S14.
- 15. Palombo JD, DeMichele SJ, Boyce P, et al. Alveolar macrophages (AM) maintain respiratory burst and bactericidal function after dietary displacement of phospholipid arachidonic acid (AA) *in vivo*. *JPEN J Parenter Enteral Nutr.* 1998;22:S4.
- 16. Palombo JD, DeMichele SJ, Liu JW, et al. Specialized enteral nutrition rapidly attenuates alveolar macrophage synthesis of proinflammatory eicosanoids. *Chest.* 1998;114:294S.

# **Book Chapter and Review Articles**

- Karlstad MJ, Palombo JD, Murray MJ, DeMichele SJ. The anti-inflammatory role of gammalinolenic and eicosapentaenoic acids in acute lung injury. In: Huang Y-S, Mills DE, eds. *Gamma-Linolenic Acid: Metabolism and Its Roles in Nutrition and Medicine*. Champaign, III: AOCS Press;1996:137-167.
- 2. Mizock BA. Nutritional support in acute lung injury and acute respiratory distress syndrome. *Nutr Clin Pract.* 2001;16:319-328.
- 3. Priestley MA, Helfaer MA. Approaches in the management of acute respiratory failure in children. *Cur Opin Ped.* 2004;16:293-298.

- 4. Mizock BA, DeMichele SJ. The acute respiratory distress syndrome: Role of nutritional modulation of inflammation through dietary lipids. *Nutr Clin Pract.* 2004;19:563-574.
- 5. DeMichele S, Wood S, Wennberg A. A nutritional strategy to improve oxygenation and decrease morbidity in patients with acute respiratory distress syndrome. *Resp Care Clin N Am.* 2006;12:547-566.
- 6. Pontes-Arruda A. The use of special lipids in the treatment of inflammatory lung disease. *Clinical Nutrition Insight.* 2007;33(11):1-4.
- 7. Mizock, BA. Pharmaconutrients in the management of acute respiratory distress syndrome and acute lung injury. US Respiratory Disease. 2008:26-28.
- 8. Marik PE, Zaloga GP. Immunonutrition in critically ill patients: a systematic review and analysis of the literature. *Intensive Care Med.* 2008. epub ahead of print

### **Case Studies**

1. Malone AM. Enteral nutrition in acute respiratory distress syndrome: A case report. *Support Line.* 2004;26:1-6.