



Eating Habits During Layover Affect Flight Performance

*Crew members can prevent or reduce inflight fatigue problems
by adhering to simple guidelines for nutrition and rest.*

—
by

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The U.S. National Aeronautics and Space Administration's (NASA) Aviation Safety Reporting System (ASRS) *Call-back* reported recently problems encountered by air crew members in obtaining quality nutrition during layovers¹. Included were such problems as "pre-dawn show times, many times [when] the restaurants at the hotels are not open and therefore no breakfast [is available], and many times no breaks [were] long enough to grab a bite to eat the rest of the day..." The crew members who submitted the reports said that problems in obtaining proper nutrition during layovers contributed to subsequent flight fatigue.

The topic of nutrition during layovers can be broadly categorized by the nature of the associated flight operations. Operations can be grouped as domestic or international and short- or long-haul. In addition, layover locations can be grouped as urban vs. those which are relatively remote. The time of layovers, relative to restaurant

and related facility hours, constitutes another subdivision. The restaurant service efficiency and the type of food available are other considerations. Corporate operations, regional airlines, and domestic and international airlines are additional broad categories.

Corporate Operations Present Nutritional Problems

Corporate operations may involve landings with layovers at small, relatively remote airports. Pilots in these operations may find themselves at sites with no food available other than from vending machines. Vending machine food items are normally high in sugar, saturated fat, cholesterol and sodium, all of which are unhealthy nutritional elements when eaten in excess. The corporate pilot is potentially at another disadvantage, namely, the requirement to remain close to the aircraft should the passengers

want to depart on short notice. It is not unusual to have an indefinite time of departure.

In the United States, another consideration in regard to corporate operations is that they are conducted under U.S. Federal Aviation Regulation 91 (FAR 91) which specifies neither flight time limitations nor rest requirements. Accordingly, aspects of poor nutrition and fatigue can reduce pilot performance.

Regional Operations Are A Slight Improvement

In the United States, regional flights operate under FAR 135 which prescribes maximum allowable flight time and required rest requirements. At times, some operators may schedule pilots to the maximum flight time limit allowed under FAR 135, making a very long day for the pilots. Pilots who lay over at motels located away from airports may experience delays that promote fatigue. A pilot may elect to eat at the local airport or motel, and there may be certain locations where one or more quality restaurants are available in the immediate vicinity of the airport. However, restaurant food is generally expensive, high in fat content, high in sugar and high in sodium.

Major Airline Operations Offer The Best Food and Rest Options

For major airline pilots, inflight food service may be available on certain routes, and may be of reasonable quality. These crew members may have layover locations in major hotel facilities in a downtown area. There may be variations in hotel or food quality, but domestic airline pilots have the advantage over those in international operations because domestic layover sites have restaurants with familiar food.

International Operations Introduce Unique Concerns

For pilots who fly between various countries, varieties of local ethnic foods must be taken into consideration. Crew members should learn about these types of foods and determine which ones are more nutritious, as well as which ones are easier for them to digest. Methods of avoiding food and water poisoning must be considered. The hours of flight departures and arrivals are key factors in correlating nutrition with international destinations. It is not unusual for a crew to arrive at a layover early in the morning and find that rooms are not available, another contributor to fatigue.

Nutrition Knowledge Can Ease Problems during Layover

There are numerous, excellent books that furnish nutrition guidelines that can be of benefit to pilots. Three excellent contemporary books are available in paperback that describe key aspects of nutrition^{2,3,4}. The reference to the book *Nutripoints* by Vartabedian and Matthews² contains a forward by Kenneth Cooper, M.D., the originator of the term "aerobics" and a pioneer in exercise and health programs, including guidance on proper nutrition. The authors point out that their book is a summary of specific guidance given by key U.S. health groups, including the American Heart Association, the American Cancer Society, the National Cancer Institute and the American Dietetic Association.

Nutripoints outlines daily intake requirements of each major nutrient, and specifies idealized portions of proteins, carbohydrates, fiber, vitamins and minerals. The book also provides guidance on limiting the levels of fat, cholesterol, sugar and sodium by using a "Nutripoint score" for a specific food. Through the point score, one can follow a practical guideline to health in making daily food selections.

The Nutripoint approach allows various foods to be scored in regard to the point scale. The book explains that the system is based on food nutrition groups which include vegetable, fruit, grain, legume, milk/dairy and meat/poultry/fish. Specific foods within each group are given scores and an individual can select the brand-name foods listed in the book on the basis of the Nutripoint score. For example, a certain whole wheat cereal is given 64.5 points while another brand of 100 percent natural cereal is given one point.

The book explains the aspect of calories, and stipulates how many daily calories one should consume (the average male burns 1,500 to 2,000 calories per day, and the average female burns 1,200 to 1,800 calories per day). However, the book suggests that if one focuses on Nutripoints, that is, averaging about 100 Nutripoints per day, the caloric intake will be satisfactory, too. The daily food intake will be satisfying and not excessive so as to cause a weight gain or too little to result in weight loss. This reference is cited because it provides a unique approach to daily nutrition that it is easy to follow and also stimulates thought about food intake.

The Nutripoint value is based on a combination of calorie level, vitamins and other basic nutritional requirements, and relates to specific food groups. Table 1 gives some examples by food group.

The authors of *Nutripoints* state that the daily objective

is to eat four vegetable servings, three fruit servings, and so on, according to the table. Additional recommendations presented by Vartabedian and Matthews are to eat a variety of foods, maintain the desired weight, limit fat (and cholesterol), obtain adequate starch and fiber, avoid excessive sugar, avoid excessive sodium, and practice

Table 1
Daily Recommendations (examples)

Servings	Nutrigroup	Nutripoints
4	Vegetables	55
3	Fruits	15
2	Grains	10
1	Legumes	5
2	Milk/Dairy	10
1	Meat/Poultry/Fish	5
	Total	100

caution with alcohol if it is consumed at all.

Table 2 lists some examples of various beverages and foods by Nutripoint value to illustrate the application of the system in daily activities.

The American Heart Association publication *Fat and Cholesterol Counter*⁴ provides similar information that is

Table 2
Examples by Nutripoint Value

	Nutripoints
Juice*	
Unsweetened grapefruit juice	11.0
Frozen orange juice	10.0
Pineapple juice	5.0
Cranapple juice	1.5
Apple juice	1.0
Cereal*	
Whole wheat	64.5
100 percent bran cereal	31.0
Certain sugar cereals	7.5
A certain 100 percent natural cereal	1.0
Food Processing Effects*	
Baked potato	8.0
Mashed potato	1.0
Instant mashed potatoes	-0.5
Potato chips	-1.5

*Brands specified in reference².

specifically tailored to fat content of various foods. With a little application of the information in this and the other books, the selection of nutritious and healthy foods may become second nature. Healthy eating has been shown by various studies worldwide to promote well-being and to diminish the risk of development of various diseases — a very important consideration for all flight crew members.

*Fast Food Facts*³ is a relatively small book that can be carried easily. It lists by brand name the various fast foods as well as their different calorie levels and food content, including saturated fat and cholesterol levels.

Solutions Offered to The Air Crew Member

Ideally, the air crew member will have available during layovers adequate flavorful, satisfying food of high nutritive value. In addition, the food will be low in the ingredients that are identified as promoters of cardiovascular disease, hypertension, excessive hyperglycemia, hypoglycemia and other indispositions or diseases. For shorter flights with no onboard food service, some pilots may elect to bring specific food items on their flight in a small portable cooler. Such foods as a lean meat sandwich with lettuce and other vegetables, an apple, an orange, grapes and some crackers can be packed in the cooler. Use some originality to vary the contents from trip to trip. In addition, a small container with water may be carried on the flight deck if drinking water is not routinely available on the aircraft. This can prevent dehydration during flight, a common occurrence in a dry cabin environment.

It may help to develop a suitable exercise activity during layovers. This can range from using hotel exercise facilities, doing push-ups and sit-ups in the hotel room, to swimming, jogging or walking. During transits in airports, walking can help loosen muscles that may become stiff from sitting. Each person must develop approaches to nutrition and exercise that suit his or her specific circumstances. ♦

References

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