

**JULY 1999**

*Astronaut medication use (NASA-Johnson Space Center and Wyle Laboratories, Houston, TX):* “We evaluated in-flight use of medications from astronaut debriefings after 79 U.S. Space Shuttle missions. From the 219 records obtained (each representing one person-flight), 94% included some medication being taken during flight; of that number, 47% were for space motion sickness, 45% for sleep disturbances, and smaller percentages for headache, backache, and sinus congestion. Drugs were taken most often orally, followed in decreasing order of frequency by intranasal, intra-muscular, and rectal routes. Drugs for space motion sickness were taken mostly during the first 2 d of flight, drugs for pain during the first 4 d, and drugs for sleeplessness and sinus congestion were taken consistently for 9 flight days. About 85% of all doses had no reported side effects, and most of the side effects that were reported happened during the first mission day. About 80% of the drug-dose events were perceived effective by the recipients; most of the reports of ineffectiveness occurred during the first mission day. Promethazine, the only drug given by three different routes (orally, intramuscularly, and rectally), was most effective and had minimal side effects when taken intramuscularly. This information, although useful, should be expanded to include objective measures of effectiveness so that therapeutic efficacy can be assessed during flight.”<sup>1</sup>

**JULY 1974**

*Vision on runway approach (Medical Department, Trans World Airlines, Kansas City, MO):* “A questionnaire survey of 360 commercial airline pilots was conducted to identify which of the known monocular visual cues are visualized in determining and monitoring glide slope position during a visual approach to landing. The subtended visual angle of the runway, familiar objects along the approach terrain and motion parallax of the runway were ranked in that order. ...

“While the results of this survey confirm or validate certain known information they suggest, as some authors have in the past, that the perception of depth or distance during visual approach to landing is a highly complex and integrative perceptual process involving continually changing monocular visual cues best described as ‘runway perspective’ and ‘runway motion parallax.’ Runway perspective describes the size, shape and slant of the runway or runway lights, and includes the monocular cues of subtended visual angle and linear perspective. An important aspect of this, which may be considered a separate cue for distance judgment, is the moment-to-moment rate of change of this runway perspective which Hodgson describes as ‘The Visual Rate of Closure.’ Runway motion parallax is the apparent movement of the runway or a touchdown target point on the runway with vertical positional changes along the glide path.”<sup>2</sup>

**JULY 1949**

*Air transportation of patients (USAF School of Aviation Medicine, Randolph Field, TX):* “Prior to World War II, aerial transportation was not accepted generally as a primary method for evacuating

patients, due to the belief that movement by air was unreliable and dangerous. During the last war, however, evacuation of casualties by air became a matter of necessity and not of choice. It was that or nothing ...

“It is practicable to evaluate the effects of aerial transportation on patients with different clinical conditions via a report filed by flight nurses ... The preliminary data at hand do not contraindicate aerial transportation for any of the selected classifications of patients included in this analysis ... Continued and expanded study of the problem is necessary before any firm conclusions may be reached.”<sup>3</sup>

*Orthostatic tolerance test (Pittsburgh, PA):* “Great confusion exists as to what constitutes an orthostatic tolerance test. The confusion apparently arises from the fact that numerous factors are added to the test, which so modify it that the resulting differences make it difficult to evaluate the test itself ...

“The orthostatic tolerance test means only that an attempt is made to measure a change in the systolic and diastolic blood pressures when an individual changes from the recumbent to the erect or standing position. The usual time for stabilizing the pressure in the erect position is three minutes. The test should be limited to this observation and no other ...

“Variations in the pulse rate, such as stationary pulse, tachycardia or bradycardia, are not involved in the test, because they are separate entities, and may or may not be present with orthostatic hypotension ...

“Orthostatic hypotension may be, but is not necessarily, a sign of emotion or nervous instability. It hardly seems likely that all 1,154 of our patients possessed complete emotional and nervous stability, even though they had ‘negative’ orthostatic tests ...

“Orthostatic hypotension is rarely, if ever, seen in the normal. It is common in fatigue and debility states, anemias, certain cardiac diseases, carotid sinus syndrome and Addison’s disease. It frequently occurs in older individuals with arteriosclerotic changes in the nervous system, particularly when these changes involve the hypothalamus.”<sup>4</sup>

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