

### Chapter 3

## VITAMIN C AND INFECTIOUS DISEASE: A REVIEW OF THE LITERATURE AND THE RESULTS OF A RANDOMIZED, DOUBLE-BLIND, PROSPECTIVE STUDY OVER 8 YEARS

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### TABLE OF CONTENTS

I.	Review of the Literature .....	40
A.	In Vitro Studies .....	40
B.	Animal Studies .....	40
C.	High-Dose Vitamin C and the Common Cold.....	40
D.	Vitamin C in Other Infections.....	46
E.	Wound Healing.....	57
F.	Conclusions .....	57
II.	Clinical Investigation: An 8-Year, Prospective, Double-Blind Study of High- vs. Low-Dose AA Supplementation for the Prevention of Common Colds .....	57
A.	Introduction .....	57
B.	Methods and Materials .....	59
C.	Results and Discussion.....	60
D.	Conclusions .....	65
	References .....	70

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## REFERENCES

1. **Abbasy, M. A.**, Vitamin C and juvenile rheumatism, *J. Soc. Chem. Ind.*, 55, 841, 1936.
2. **Abbott, P.**, Seventy-seven others. Ineffectiveness of Vitamin C in treating Coryza, *Practitioner*, 200, 442, 1968.
3. **Abt, A. F. and Farmer, C. J.**, Vitamin C: pharmacology and therapeutics, *JAMA*, 111, 1555, 1938.
4. **Albanese, P.**, Treatment of respiratory infections with high doses of Vitamin C, *El Dia Med.*, 19, 1738, 1947.
5. **Albrecht, E.**, Vitamin C as an adjuvant in the therapy of lung tuberculosis, *Med, Klin. (Munich)*, 34, 972, 1938.
6. **Alexander, H.**, Vitamin C and tuberculosis, *Dtsch. Tuberk. BL*, 14, 125, 1940.
7. **Allen, A. E., and Das Gupta, V.**, Quantitative determination of phenylephrine hydrochloride, ascorbic acid and methapyrilene hydrochloride in an anticold formula, *Am. J. Hosp. Pharmacol.*, 30, 77, 1973.
8. **Amato, G.**, Azione dell'acido ascorbico sul virus fisso della rabbia e sulla tossina tetanica, *G. Batteriol. Virol. ImmunoL (Torino)*, 19, 843, 1937.
9. **Anderson, T. W.**, Vitamin C: cure for the common cold? *Am. Pharmacol.*, 19, 46, 1979.
10. **Anderson, T. W.**, Large scale trials of vitamin C, *Ann. N.Y. Acad. Sci.*, 258, 498, 1975.
11. **Anderson, T. W.**, Large scale studies with vitamin C, *Acta Vitaminol. Enzymol.*, 31, 43, 1977.
12. **Anderson, T. W.**, Large scale trials of vitamin C in the prevention and treatment of "colds", *Acta Vitaminol. Enzymol.*, 28, 99, 1974.
13. **Anderson, T. W., Beaton, G. H., Corey, P. N., and Spero, L.**, Winter illness and vitamin C: the effect of relatively low doses, *Can. Med. Assoc. J.*, 112, 823, 1975.
14. **Anderson, T.W., Reid, D. B., and Beaton, G. H.**, Vitamin C and the common cold, *Can. Med. Assoc. J.*, 108, 133, 1973.

15. **Anderson, T. W., Reid, I. B., and Beaton, G.H.**, Vitamin C and serum cholesterol, *Lancet*, 2, 876, 1972.
16. **Anderson, T. W., Reid, D. B., and Beaton, G. H.**, Vitamin C and the common cold: a double blind trial, *Can. Med. Assoc. J.*, 107, 503, 1972.
17. **Anderson, T. W., Suranyi, G., and Beaton, G. H.**, The effect on winter illness of large doses of vitamin C, *Can. Med. Assoc. J.*, 111, 31, 1974.
18. **Anon.**, Ascorbic acid and common colds, *Br. Med. J.*, 3, 311, 1973.
19. **Anon.**, Good health — the simple way, *Nurs. Times*, 72, 1587, 1976.
20. **Anon.**, Vitamin C and the common cold, *Ceylon Med. J.*, 16, 1971.
21. **Anon.**, Vitamin C and the common cold, *Nutr. Rev.*, 32, 39, 1974.
22. **Anon.**, Vitamin C and the common cold, *Nutr. Rev.*, 31, 303, 1973.
23. **Anon.**, Vitamin C and the common cold, *Med. Lett. Drugs Ther.*, 12, 105, 1970.
24. **Anon.**, Vitamin C — were the trials well controlled and are large doses safe? *Med. Lett. Drugs Ther.*, 13, 46, 1971.
25. **Anon.**, Megavitamin therapy: evidence still sketchy, *Can. Med. Assoc. J.*, 119, 81, 1978.
26. **Anon.**, Ineffectiveness of vitamin C in treating Coryza, *Practitioner*, 200, 442, 1968.
27. **Anon.**, The common cold — vitamin C, antibiotics, 1-antigen B, etc., *Drug Ther. Bull.*, 5, 35, 1967.
28. **Anon.**, Vitamin C may enhance healing of caustic corneal burns, *JAMA*, 243, 623, 1980.
29. **Anon.**, Ascorbic acid — immunological effects and hazards, *Lancet*, 1, 308, 1979.
30. **Anon.**, Primate studies indicate that subclinical and acute vitamin C deficiency may lead to periodontal disease, *JAMA*, 246, 730, 1981.
31. **Anon.**, Vitamin C for patients with leprosy, *JAMA*, 233, 188, 1975.
32. **Anon.**, Is vitamin C really good for colds? *Consumer Rep.*, February, 68, 1976.
33. **Anon.**, Ascorbic acid and the common cold, *Nutr. Rev.*, 24, 228, 1967.
34. **Anon.**, Vitamin C, Linus Pauling and the common cold, *Consumer Rep.*, February, 113, 1971.
35. **Anon.**, Vitamin C and the common cold, *Med. J. Aust.*, 1, 1361, 1971.
36. **Babbar, I. J.**, Therapeutic effect of ascorbic acid in tuberculosis, *Indian Med. Gaz.*, 83, 409, 1948.
37. **Babes, V. T., Militaru, M., and Lenkei, R.**, Effects of vitamin A and C overdose on formation of influenza HAI antibodies in the mouse, *Virologie*, 27, 63, 1976.
38. **Baetgen, D.**, Results of the treatment of epidemic hepatitis in children with high doses of ascorbic acid in the years 1957—58, *Med. Monatsschr.*, 15, 30, 1961.
39. **Baird, I. M., Hughes, R. E., Wilson, H. K., Davies, J. E., and Howard, A. N.**, The effects of ascorbic acid and flavonoids on the occurrence of symptoms normally associated with the common cold, *Am. J. Clin.Nutr.*, 32, 1686, 1979.
40. **Bakhsh, I. and Rabbani, M.**, Vitamin C in pulmonary tuberculosis, *Indian Med. Gaz.*, 74, 274, 1939.
41. **Barnes, F. E., Jr.**, Vitamin supplements and the incidence of colds in high school basketball players, *N. C.Med.J.*, 22, 22, 1961.
42. **Bartlett, M. K., Jones, C. M., and Ryan, A. E.**, Vitamin C and wound healing. II. Ascorbic acid content and tensile strength of healing wounds in human beings, *N. Engl. J. Med.*, 226, 474, 1942.
43. **Bartley, W., Krebs, H. A., O'Brien, J. R. P.**, Medical Research Council Special Report Series No. 280, Her Majesty's Stationer's Office, London, 1953.
44. **Baur, H.**, Poliomyelitis therapy with ascorbic acid, *Helv. Med. Acta*, 19, 470, 1952.
45. **Baur, H. and Staub, H.**, Therapy of hepatitis with ascorbic acid infusions, *Schweiz. Med. Wochenschr.*, 84, 595, 1954.
46. **Beaton, G. H., and Whalen, S.**, Vitamin C and the common cold, *Can. Med. Assoc. J.*, 105, 355, 1971.
47. **Bechelli, L. M.**, Vitamin C therapy of the lepra reaction, *Rev. Bras. Leprol.*, 1, 251, 1939.
48. **Bee, D. M.**, The vitamin C controversy, *Postgrad. Med.*, 67, 64, 1980.
49. **Belfield, W. O. and Stone, I.**, Megascorbie prophylaxis and megascorbie therapy: a new orthomolecular modality in veterinary medicine, *J. Int. Acad. Prev. Med.*, 2, 10, 1975.
50. **Bernik, V.**, Vitamin C in high doses and colds, *Rev. Paul. Med.*, 80, 211, 1972.
51. **Berquist, G.**, in *Sven. Laekartidn.*, 37, 1149, 1940.
52. **Bessel-Lorck, C.**, Common cold prophylaxis in young people at ski camp, *Med. Welt.*, 44, 2126, 1959.
53. **Bessey, O. A., Menten, M. L., and King, C. G.**, Pathologic changes in organs of scorbutic guinea pigs, *Proc. Soc. Exp. Biol. Med.*, 31, 455, 1934.
54. **Biilmann, G.**, Ascorbic acid treatment of croupous pneumonia, *Acta Med. Scand. Suppl.*, 123, 102, 1941.
55. **Birkhaug, K. E.**, The role of vitamin C in the pathogenesis of tuberculosis in the guinea pig, *Acta Tuberc. Scand.*, 12, 89, 1938.
56. **Birkhaug, K. E.**, The role of vitamin C in the pathogenesis of tuberculosis, *Acta Tuberc. Scand.*, 13, 45, 1939.
57. **Birkhaug, K. E.**, The role of vitamin C in the pathogenesis of tuberculosis in the guinea pig, *Acta Tuberc. Scand.*, 12, 359, 1938.

58. **Blum, K. U.**, Value of ascorbic acid therapy, *Med. Klin.*, 67, 1574, 1972.
59. **Bogen, E., Hawkins, L., and Bennett, E. S.**, Vitamin C treatment of mucous membrane tuberculosis, *Am. Rev. Tuberc.*, 44, 596, 1941.
60. **Bohme H. R., Richter, H., and Fischer, P.**, The effect of drugs on laboratory diagnosis. The effect of ascorbic acid on selected automatic laboratory methods, *Z. Gesamte Inn. Med. Ihre Grenzgeb.*, 34, 574, 1979.
61. **Boissevain, C. H. and Spillane, J. H.**, Effect of synthetic ascorbic acid on the growth of tuberculosis bacillus. *Am. Rev. Tuberc.*, 35, 661, 1937.
62. **Borsalino, G.**, La fragilità capillare nella tubercolosi polmonare e le sue modificazioni per azione della Vitamin C, *G. Clin. Med. (Bologna)*, 18, 273, 1937.
63. **Bouhuys, A.**, Colds and antihistaminic effects of vitamin C., *N. Engl. J. Med.*, 290, 633, 1974.
64. **Bourne, G. H.**, Vitamin C and immunity, *Br. J. Nutr.*, 2, 341, 1949.
65. **Bourne, G. H.**, The effect of vitamin C on the healing of wounds, *Proc. Nutr. Soc.*, 4, 204, 1946.
66. **Boyden, S. V. and Andersen, M. E.**, Diet and experimental tuberculosis in the guinea pig, *Acta Pathol. Microbiol. Scand.*, 39, 107, 1956.
67. **Braendon, O. J.**, The common cold: a new approach, *Int. Res. Commun. System*, I, 12, 1973.
68. **Briggs, M. H. and Briggs, M.**, Vitamin C and colds, *Lancet*, 1, 998, 1973.
69. **Brown, R. G.**, Possible problems of large intakes of ascorbic acid, *JAMA*, 224, 1529, 1973.
70. **Gaels, F.**, Contribution to the study of the effect of high doses of vitamin C in oto-rhino-laryngological infections, *Acta Oto Rhino Laryngological Belg.*, 7, 395, 1953.
71. **Calleja, H. B. and Brooks, R. H.**, Acute hepatitis treated with high doses of vitamin C, *Ohio State Med. J.*, 56, 821, 1960.
72. **Cameron, E. and Pauling, L.**, Ascorbic acid and the glycosaminoglycans: an orthomolecular approach to cancer and other diseases, *Oncology*, 27, 181, 1973.
73. **Campanacci, D.**, Current data on the physiopathological and therapeutic importance of vitamin C, *J'. Clin. Med.*, 55, 1, 1974.
74. **Carr, A. B., Einstein, R., Lai, L. Y. C., Martin, N. G., and Starmer, G. A.**, Vitamin C and the common cold — using identical twins as controls, *Med. J. Aust.*, 2, 411, 1981.
75. **Carson, M., Corbett, M., Cox, H., and Pollitt, N.**, Vitamin C and the common cold, *Br. Med. J.*, 1, 577, 1974.
76. **Catalano, P. M.**, Vitamin C, *Arch. Dermatol.*, 103, 537, 1971.
77. **Cathcart, R. F.**, Clinical trial of vitamin C, *Med. Tribune*, June 25, 1975.
78. **Chacko, D. D.**, A note on the use of vitamin C in arteriosclerosis, *J. Christ. Med. Assoc. India*, 27, 277, 1952.
79. **Chalmers, T. C.**, Effects of ascorbic acid on the common cold: an evaluation of the evidence, *Am. J. Med.*, 58, 532, 1975.
80. **Chang, T. W. and Snyderman, D. R.**, Antiviral agents: action and clinical use, *Drugs*, 18, 354, 1979.
81. **Charleston, S. S., and Clegg, K. M.**, Ascorbic acid and the common cold, *Lancet*, 1, 1401, 1972.
82. **Charpy, J.**, Ascorbic acid in very large doses alone or with vitamin D<sub>2</sub> in tuberculosis, *Bull. Acad. Natl. Med.*, 132, 421, 1948.
83. **Cheraskin, E., Ringsdorf, W. M., Michael, D. W., and Hicks, B. S.**, Daily vitamin C consumption and reported respiratory findings, *Int. J. Vitam. Nutr. Res.*, 43, 42, 1972.
84. **Clegg, K. M.**, Studies associated with ascorbic acid, *Acta Vitaminol. Enzymol.* 28, 101, 1974.
85. **Clegg, K. M. and MacDonald, J. M.**, D-isoascorbic acid investigated in a common cold survey, *Proc. Nutr. Soc.*, 34, 7A, 1975.
86. **Clegg, K. M. and MacDonald, J. M.**, L-ascorbic acid and D-isoascorbic acid in a common cold survey, *Am. J. Clin. Nutr.*, 28, 973, 1975.
87. **Clegg, K. M. and MacDonald, J. M.**, D-isoascorbic acid investigated in a common cold survey. Abstracts of communications, *Br. Nutr. Soc.*, 33, 7A, 1974.
88. **Cochrane, W. A.**, Overnutrition in prenatal and neonatal life: a problem?, *Can. Med. Assoc. J.*, 93, 893, 1965.
89. **Cook, J. D. and Mousen, E. R.**, Vitamin C, the common cold and iron absorption, *Am. J. Clin. Nutr.*, 30, 235, 1977.
90. **Cooper, M. R., McCall, C. E., and DeChatelet, L. R.**, Stimulation of leukocyte hexose monophosphate shunt, activity by ascorbic acid, *Infect. Immunol.*, 3, 851, 1971.
91. **Cottingham, E. and Mills, C. A.**, Influence of temperature and vitamin deficiency upon phagocytic functions, *J. Immunol.*, 47, 493, 1943.
92. **Coulehan, J. L.**, Ascorbic acid and the common cold: reviewing the evidence, *Postgrad. Med.*, 66, 153, 1979.
93. **Coulehan, J. L.**, Ascorbic acid and the common cold: reviewing the evidence, *Postgrad. Med.*, 66, 157, 1979.

94. **Coulehan, J. L.**, Ascorbic acid and the common cold: reviewing the evidence. *Postgrad. Med.*, 66, 160, 1979.
95. **Coulehan, J. L., Eberhard, S., Kapner, L., Taylor, P., Rogers, K., and Garry, P.**, Vitamin C and acute illness in Navajo school children. *N. Engl. J. Mcd.*, 295, 973, 1976.
96. **Coulehan, J. L., Kapner, L., Eberhard, S., Taylor, F. H., and Rogers, K. I.**, Vitamin C and upper respiratory illness in Navajo children: preliminary observations (1974), *Ann. N. Y. Acad. Sci.*, 258, 513, 1975.
97. **Coulehan, J. L., Reisinger, K. S., Rogers, K. I., and Bradley, D. W.**, Vitamin C prophylaxis in a boarding school, *N. Engl. J. Med.*, 290, 6, 1974.
98. **Counsell, J. N. and Hornig, B. H., Eds.**, *Vitamin C (Ascorbic Acid)*, Applied Science, London, 1981.
99. **Cowan, D. W. and Diehl, H. S.**, Antihistaminic agents and ascorbic acid in the early treatment of the common cold, *JAMA*, 143, 421, 1950.
100. **Cowan, D. W., Diehl, H. S., and Baker, A. B.**, Vitamins for the prevention of colds, *JAMA*, 120, 1268, 1942.
101. **Dahlberg, G., Engel, A., and Rydin, H.**, The value of ascorbic acid as a prophylactic against common colds, *Acta Med. Scand.* 119, 540, 1944.
102. **Dainow, L.**, Treatment of herpes zoster with vitamin C, *Dermatologia*, 68, 197, 1943.
103. **Dalton, W. L.**, Massive doses of vitamin C in the treatment of viral diseases, *J. Indiana State Med. Assoc.*, 55, 1151, 1962.
104. **Davies, J. E., Hughes, R. E., Jones, E., Reed, S. E., Craig, J. W., and Tyrrell, D. A.**, Metabolism of ascorbic acid (vitamin C) in subjects infected with common cold viruses, *Biochem. Med.*, 21, 78, 1979.
105. **Debre, R.** L'anergie dans la grippe, *C. R. Seances Soc. Biol. (Paris)*, 81, 913, 1918.
106. **DeChatelet, L. R.**, Ascorbic acid: possible role in phagocytosis, 62nd Meet. Am. Soc. Biol. Chem., San Francisco, June 18, 1971.
107. **Degeller, J. C.**, Acta brevie neerland physiologic, *PharmacoL MicribioL*, 6, 64, 1936.
108. **Demole, V.**, Praktische skorbutkost Nr. 111 aus Haferflocken und Trockenmilch, *Z. Vitaminforsch.*, 3, 89, 1934.
109. **Deni, L.**, Dr. Linus Pauling and vitamin C, *J. Nurs. Care*, 12, 21, 1979.
110. **DeSavitsch, E.**, The influence of organ juice on experimental tuberculosis in guinea pigs, *Natl. Tuberc. Assoc. Trans.*, 30, 130, 1934.
111. **DeWit, J. C.**, Treatment of whooping cough with vitamin C, *Kindergeneeskunde*, 17, 367, 1949.
112. **Diehl, H. S.**, Vitamin C and colds, *New York Times*, December 26, 1970.
113. **Diehl, H. S.**, Vitamin C for colds, *Am. J. Public Health*, 61, 649, 1971.
114. **Drummond, J.**, Recent advances in the treatment of enteric fever, *Clin. Proc. (Cape Town)*, 2, 65, 1943.
115. **Dujardin, J.**, Use of high doses of vitamin C in infections, *Presse Med.*, 55, 72, 1947.
116. **Dugal, L. P.**, Vitamin C in relation to cold, *Ann. N. Y. Acad. ScL*, 92, 307, 1961.
117. **Dykes, M. H. M. and Meier, P.**, Ascorbic acid and the common cold, *JAMA*, 23L 1073, 1975.
118. **Dymock, I. W., Truck, W. E. G., Brown, P. W., Sircus, W., Small, W. P., and Thomson, C.**, Vitamin C and gastro-duodenal disorders, *Br. Med. J.*, 1, 179, 1968.
119. **Ebner, H.**, On the therapeutic status of influenza and similar infections, *Landartz*, 44, 853, 1968.
120. **Editorial**, Vitamin C and the common cold, *Br. Med. J.*, I, 606, 1976.
121. **Editorial**, Vitamin C and colds, *S. Afr. Med. J.*, 51, 773, 1977.
122. **Editorial**, Ascorbic acid: immunological effects and hazards, *Lancet*, 1, 308, 1979.
123. **Elliott, B.**, Ascorbic acid: efficacy in the prevention of symptoms of respiratory infection on a Polaris submarine, *Int. Res. Commun. System*, May, 1973.
124. **Elsborg, L.**, Use and misuse of Vitamin C, *Nord. Med.*, 94, 299, 1979.
125. **Elwood, P. C., Hughes, S. J., and St. Leger, A. S.**, A randomized controlled trial of the therapeutic effect of vitamin C in the common cold, *Practitioner*, 218, 133, 1977.
126. **Elwood, P. C., Lee, H. P., St. Leger, A. S., Baird, M., and Howard, A. N.**, A randomized controlled trial of vitamin C, *Br. J. Prev. Soc. Med.*, 30, 193, 1976.
127. **Epstein, L. H. and Masek, B. J.**, Behavioral control of medicine compliance, *J. Appl. Behav. Annal.*, 11, 1, 1978.
128. **Ericsson, Y. and Lundbeck, H.**, Antimicrobial effect, *in vitro* of the ascorbic acid oxidation. I Effect on bacteria, fungi and viruses in pure cultures. II. Influence of various chemical and physical factors, *Acta Pathol. Microbiol. Scand.* 37, 493, 1955.
129. **Ertel, H.**, Der verlaug der Vitamin C-prophylaxen in Fruhjahr, *Die Ernahrung*, 6, 269, 1941.
130. **Erwin, G. S., Wright, R. and Doherty, G. J.**, Hypovitaminosis C and pulmonary tuberculosis, *Br. Med. y.*, 1, 688, 1940.
131. **Farah, N.**, Enteric fever treated with suprarenal cortex extract and vitamin C intravenously, *Lancet*, 1, 777, 1938.
132. **Faulkner, J. M. and Taylor, F. H. L.**, Vitamin C and infection, *Ann. Int. Med.*, 10, 1867, 1937.

134. **Feldheim, W.**, Grippe-like infections and vitamin C, *Dtsch. Med. Wochenschr.*, 95, 1244, 1970.
135. **Ferreira, D. L.**, Vitamin C in leprosy, *Publ. Med.*, 20, 25, 1950.
136. **Findley, T. W.**, Vitamin C and the common cold, *N. Engl. J. Med.*, 296, 231, 1977.
137. **Fletcher, J. M. and Fletcher, I. C.**, Vitamin C and the common cold, *Br. Med. J.*, 1, 887, 1951.
138. **Floch, H. and Sureau, P.**, Vitamin C therapy in leprosy, *Bull. Soc. Pathol. Exot.*, 45, 443, 1952.
139. **Franz, W. L., Sands, G. W., and Heyl, H. L.**, Blood ascorbic acid level in bioflavonoid and ascorbic acid therapy of common cold, *JAMA*, 162, 1224, 1956.
140. **Gairdner, D.**, Vitamin C in the treatment of whooping cough, *Br. Med. J.*, 2, 742, 1938.
141. **Gander, J. and Neiderberger, W.**, Vitamin C in the treatment of pneumonia, *Muench. Med. Wochenschr.*, 51, 2074, 1936.
142. **Ganguly, R., Khakoo, R., Spencer, J. C., and Waldman, R. H.**, Immunoenhancing agents in prevention and treatment of influenza and other viral respiratory infections, *Dev. Biol. Stand.*, 39, 363, 1977.
143. **Gatti, C. and Gaona, R. J.**, Ascorbic acid in the treatment of leprosy, *Arch. Schiffs Trop. Hyg.*, 43, 32, 1939.
144. **Gazaix, M.**, Use of assur in 103 cases of influenza and adenovirus infections, *Sem. Hop.*, 42, 57, 1966.
145. **Gerson, C. D.**, Ascorbic acid deficiency in clinical diseases including regional enteritis, *Ann. N. Y. Acad. ScL*, 258, 483, 1975.
146. **Getz, H. A., Long, E. R., and Henderson, H. J.**, A study of the relation of nutrition to the development of tuberculosis, *Am. Rev. Tuberc.*, 64, 381, 1951.
147. **Glazebrook, A. J. and Thomson, S.**, The administration of vitamin C in a large institution and its effect on general health and resistance to infection, *J. Hyg.*, 42, 1, 1942.
148. **Goldsmith, G. A.**, Common cold: prevention and treatment with ascorbic acid not effective, *JAMA*, 216, 337, 1971.
149. **Goldstein, M. L.**, High dose ascorbic acid therapy, *JAMA*, 216, 332, 1971.
150. **Gordonoff, T.**, Dorf man wasserlosliche vitamine überdosieren? Versuche mit Vitamin C, *Schweiz. Med. Wochenschr.*, 90, 726, 1960.
151. **Gorman, J. F.**, The vitamin C controversy, *Postgrad. Med.*, 67, 64, 1980.
152. **Greene, M. R., Steiner, M., and Kramer, B.**, Role of chronic vitamin C deficiency in pathogenesis of tuberculosis in guinea pigs, *Am. Rev. Tuberc.*, 33, 585, 1936.
153. **Greene, M. and Wilson, C. W.**, Effect of aspirin on ascorbic acid metabolism during colds, *Br. J. Clin. Pharmacol.*, 2, 369, 1975.
154. **Greer, E.**, Vitamin C in acute poliomyelitis, *Med. Times*, 83, 1160, 1955.
155. **Gromova, L. L., Chizhikov, D. V., and Minina, S. A.**, Antigrippen tablet technology, *Farmatsiya (Moscow)*, 24, 67, 1975.
156. **Groot en, O. and Bezssonoff, N.**, Action of vitamin C on diphtheria toxin, *Ann. Inst. Pasteur*, 56, 413, 1936.
157. **Gsell, O. and Kalt, F.**, Treatment of epidemic poliomyelitis with high doses of ascorbic acid, *Schweiz. Med. Wochenschr.*, 84, 661, 1954.
158. **Gunzel, W. and Kroehnert, G.**, Experiences in the treatment of pneumonia with vitamin C, *Fortschr. Ther.*, 13, 460, 1937.
159. **Gupta, G. C.D. and Guha, B. C.**, The effect of vitamin C and certain other substances on the growth of microorganisms, *Ann. Biochem. Exp. Med.*, 1, 14, 1941.
160. **Harde, E. and Phillippe, M. M.**, Observations on the antigenic activities of combined diphtheria toxin and vitamin C, *C. R. Acad. Sci.*, 199, 738, 1934.
161. **Harris, A., Robinson, A. B., and Pauling, L.**, Blood plasma L-ascorbic acid concentration for oral L-ascorbic acid dosage up to 12 grams per day, *Int. Res. Commun. System*, December 1973, 19.
162. **Harris, L. J., Passmore, R., Oxon, B. M., Pagel, W., and Berlin, M. D.**, Influence of infection on the vitamin content of the tissues of animals, *Lancet*, 2, 183, 1937.
163. **Hasselbach, F.**, Vitamin C und lungentuberkulose. Veraus-setzungen beobachtungen und erfahrungen bei der behandlung lungentuberkuloser, *Z. Tuberk. Erkr. Thoraxorgane*, 75, 336, 1936.
164. **Hasselbach, F.**, Therapy of tuberculosis pulmonary hemorrhages with vitamin C, *Fortschr. Ther.*, 1, 407, 1935.
165. **Heinrich, H. C.**, Is vitamin C prevention and therapy of virus-caused cold diseases in man justified? *Muench. Med. Wochenschr.*, 110, 1031, 1968.
166. **Heise, F. and Steenken, W., Jr.**, Vitamin C immunity in tuberculosis in guinea pigs, *Am. Rev. Tuberc.*, 39, 794, 1939.
167. **Heise, F., and Martin, G.J.**, Supervitaminosis C in tuberculosis, *Proc. Soc. Exp. Biol. Med.*, 35, 337, 1936.
168. **Heise, F. H. and Martin, G.J.**, Ascorbic acid metabolism in tuberculosis, *Proc. Soc. Exp. Biol. Med.*, 34, 642, 1936.

169. **Hejda, S., Smola, J., and Masek, J.**, Influence of physiological vitamin C allowances on the health status of miners. *Rev. Czech. Med.*, 22, 90, 1976.
170. **Herbert, V. and Jacob, E.**, Destruction of vitamin B12 by ascorbic acid, *JAMA*, 230, 241, 1974.
171. **Hill, R. E. and Ramananda, K.**, "Pink" diarrhoea. Osmotic diarrhoea from a sorbitol-containing vitamin C supplement, *Med. J. Aust.*, 1, 387, 19K2.
172. **Hindson, T. C.**, Ascorbic acid for prickly heat. *Lancet*, 1, 1347, 1968.
173. **Hochwald, A.**, Observations on the effect of ascorbic acid on croupous pneumonia, *Wien. Arch. Inn. Med.*, 29, 353, 1936.
174. **Hoffer, A.**, Vitamin C and the common cold. *Can. Med. Assoc. J.*, 105, 901, 1971.
175. **Holden, M. and Molloy, E.**, Further experiments on inactivation of herpesvirus by vitamin C (1-ascorbic acid), *J. Immunol.*, 33, 251, 1937.
176. **Holden, M. and Resnick, R. J.**, In vitro action of synthetic crystalline vitamin C (ascorbic acid) on herpesvirus, *J. Immunol.*, 31, 455, 1936.
177. **Hornig, D.**, Requirements of vitamin C in man, *Trends Pharmacol. Sci.*, 3, 294, 1982.
178. **Horrobin, D. F.**, D. V. T. after vitamin C?, *Lancet*, 2, 317, 1973.
179. **Hughes, R. E.**, Nonscorbutic effects of vitamin C biochemical aspects, *Proc. R. Soc. Med.*, 70, 86, 1977.
180. **Hume, R., Johnstone, J. M. S., and Weyers, E.**, Interaction of ascorbic acid and warfarin, *JAMA*, 219, 1479, 1972.
181. **Hume, R. and Weyers, E.**, Changes in leucocyte ascorbic acid during the common cold, *Scott. Med. J.*, 18, 3, 1973.
182. **Humphrey, G. L., Kemp, G. E., and Wood, E. G.**, A fatal case of rabies in a woman bitten by an insectivorous bat, *Public Health Rep.*, 75, 317, 1960.
183. **Isaksson, B.**, Vitamins 13, vitamin C, *Lakanidningen*, 69, 101, 1972.
184. **Jacob, E., Scott, J., and Brenner, L.**, Apparent low serum vitamin B12 levels in paraplegic veterans, taking ascorbic acid, *Proc. 16th Ann. Meet. Am. Soc. Hematol.*, Chicago, December 1—4, 1973, 125.
185. **Jakowlew, N.**, Zur vitaminnorm, *Ernaehmungsforschung*, 3, 446, 1958.
186. **Jetter, W. W. and Bumbalo, T. S.**, The urinary output of vitamin C in active tuberculosis in children, *Am. J. Med. Sci.*, 195; 362, 1938.
187. **Josewich, A.**, Value of vitamin C therapy in lung tuberculosis, *Med. Bull. Veterans Adm.*, 16, 8, 1939.
188. **Jungeblut, C. W.**, Inactivation of poliomyelitis virus by crystalline vitamin C (ascorbic acid), *J. Exp. Med.*, 62, 517, 1935.
189. **Jungeblut, C. W.**, Inactivation of tetanus toxin by crystalline vitamin C (ascorbic acid), *J. ImmunoL*, 33, 203, 1937.
190. **Jungeblut, C. W.**, Further observations on vitamin C therapy in experimental poliomyelitis, *J. Exp. Med.*, 65, 127, 1937.
191. **Jungeblut, C. W.**, A further contribution to the vitamin C therapy in experimental poliomyelitis, *J. Exp. Med.*, 70, 327, 1939.
192. **Jungeblut, C. W. and Zwemer, R. L.**, Inactivation of diphtheria toxin in vivo and in vitro by crystalline vitamin C (ascorbic acid), *Proc. Soc. Exp. Biol. Med.*, 32, 1229, 1935.
193. **Kailakov, A. M.**, Concurrence of diabetes mellitus and hypothyrosis in the diencephalic syndrome, *Klin. Med. (Moscow)*, 49, 151, 1971.
194. **Kaplan, A. and Zonnis, M. E.**, Vitamin C in pulmonary tuberculosis, *Am. Rev. Tuberc.*, 42, 667, 1940.
195. **Karlowski, T. R., Chalmers, T. C., Frenkel, L. D., Kapikian, A. Z., Lewis, T. L., and Lynch, J. M.**, Ascorbic acid for the common cold: a prophylactic and therapeutic trial, *JAMA*, 231, 1038, 1975.
196. **Keller, H.**, Effective treatment in influenzal infections, *Landarz.* 41, 1489, 1965.
197. **Kent, S.**, Vitamin C therapy: colds, cancer and cardiovascular disease, *Geriatrics*, 33, 91, 1978.
198. **Kent, S.**, Vitamin C therapy: colds, cancer and cardiovascular disease, *Geriatrics*, 33, 99, 1978.
199. **Ketz, H. A.**, Prophylactic effect of vitamin C and vitamin C requirements of a healthy adult, *Dtsch. Gesundheitswes.*, 25, 414, 1970.
200. **Ketz, H. A.**, Vitamin C, prophylactic action, mode of action and requirements, *Nahrung*, 16, 737, 1972.
201. **Kienast, H.**, Treatment of croupous pneumonia with vitamin C, *Muensch. Med. Wochenschr.*, 23, 912, 1939.
202. **Kimbarowski, J. A. and Mokrow, N. J.**, Farbige ausfallungsreaktion des Harris nach Kimbarowski als Index der wirkung von ascorbinsaure bei behandlung der virusgrippe, *Dtsch. Gesundheitswes.*, 22, 2413, 1967.
203. **Kinlen, L. and Peto, R.**, Vitamin C and colds, *Lancet*, 1, 944, 1973.
204. **Kirchmair, H.**, Epidemic hepatitis in children and its treatment with high doses of ascorbic acid, *Dtsch. Gesundheitswes.*, 12, 1525, 1957.
205. **Kirchmair, H.**, Treatment of epidemic hepatitis in children with high doses of ascorbic acid, *Med. Monatschr.*, 11, 353, 1957.
206. **Kirchmair, H.**, Ascorbic acid treatment of epidemic hepatitis in children, *Dtsch. Gesundheitswes.*, 12, 773, 1957.

207. **Kleimenhagen, P.**, Effect of ascorbic acid on experimental tuberculosis in guinea pigs, *Z. Vitaminforsch.*, 11, 209, 1941.
208. **Klemola, K.**, Vitamin C and "flu", *Duodecim*, 89, 1273, 1973.
209. **Klenner, F. R.**, The folly in the continued use of a killed polio virus vaccine, *Tri State Med. J.*, February 1959, 1.
210. **Klenner, F. R.**, The vitamin and massage treatment for acute poliomyelitis, *South. Med. Surg.*, 114, 194, 1952.
211. **Klenner, F. R.**, The use of vitamin C as an antibiotic, *J. Appl. Nutr.*, 6, 274, 1953.
212. **Klenner, F. R.**, Observations on the dose and administration of ascorbic acid when employed beyond the range of a vitamin in human pathology, *J. Appl. Nutr.*, 23, 61, 1971.
213. **Klenner, F. R.**, Significance of high daily intake of ascorbic acid in preventive medicine, *J. Int. Acad. Prev. Med.*, 1, 45, 1974.
214. **Klenner, F. R.**, Virus pneumonia and its treatment with vitamin C, *J. South. Med. Surg.*, 110, 36, 1948.
215. **Klenner, F. R.**, The treatment of poliomyelitis and other virus diseases with vitamin C, *J. South. Med. Surg.*, 111, 209, 1949.
216. **Klenner, F. R.**, Massive doses of vitamin C and the viral diseases, *J. South. Med. Surg.*, 113, 101, 1951.
217. **Kligler, I. J. and Bernkopf, H.**, Inactivation of vaccinia virus by ascorbic acid and glutathione, *Nature (London)*, 139, 965, 1937.
218. **Kligler, I. J., Guggenheim, K., and Warburg, F. M.**, Influence of ascorbic acid on the growth and toxin production of *Clostridium tetani* and on the detoxication of tetanus toxin, *J. Pathol. Bacteriol.*, 46, 619, 1938.
219. **Kligler, I. J., Leibowitz, L., and Berman, M.**, Effect of ascorbic acid on toxin production of *Corynebacterium diphtheriae* in culture media, *J. Pathol. Bacteriol.*, 45, 414, 1937.
220. **Knodell, R. G., Tate, M. A., Akl, B. R., and Wilson, J. W.**, Vitamin C prophylaxis for post transfusion hepatitis: lack of effect in a controlled trial, *Am. J. Clin. Nutr.*, 24, 20, 1981.
221. **Kobza, R., Spioch, F. M., and Kelpacki, J.**, Effect of long term administration of vitamin C on absenteeism in coal miners, *Pol. Tyg. Lek. Wiad. Lek.*, 25, 1007, 1970.
222. **Kodama, T. and Kojima, T.**, Studies of the staphylococcal toxin, toxoid and antitoxin: effect of ascorbic acid on staphylococcal lysins and organisms, *Kitasato Arch. Exp. Med.*, 16, 36, 1939.
223. **Korbsch, R.**, Über die Kupierung entzündlich-allergischer Zustände durch die L-askorbinsäure, *Med. Klin.*, 34, 1500, 1938.
224. **Kubler, W. and Gehler, J.**, Zur Kinetik der enteralen Ascorbinsäure-Resorption zur Berechnung nicht dosisproportionaler Resorptionsvorgänge, *Int. Z. Vitaminforsch.*, 40, 442, 1970.
225. **Kurabayashi, K.**, Effect of vitamin C on bacterial toxins, *Jpn. J. Bacteriol.*, 18, 136, 1963.
226. **Kuttner, A. G.**, Effect of large doses of vitamins A, B, C and D on the incidence of upper respiratory infections in a group of rheumatic children, *J. Clin. Invest.*, 19, 809, 1940.
227. **Lamden, M. P. and Chrystowski, G. A.**, Urinary oxalate excretion by man following ascorbic acid ingestion, *Proc. Soc. Exp. Biol.*, 85, 190, 1954.
228. **Lamy, P. P. and Rotkovitz, I. I.**, The common cold and its management, *J. Am. Pharmacol. Assoc.*, 12, 582, 1972.
229. **Lane, M. M.**, Vitamin C and the common cold, *Nurs. Homes*, 20, 30, 1971.
230. **Langenbusch, W., and Enderling, A.**, Einfluss der Vitamine auf das Virus der Maul- und Klenseuch, *Zentralbl. Bakteriol.*, 140, 112, 1937.
231. **Lechicki, J.**, Has vitamin C any prophylactic effect in colds?, *Wiad. Lek.*, 22, 2234, 1969.
232. **Leibovitz, B. and Siegel, B. V.**, Ascorbic acid and the immune response, *Adv. Exp. Med. Biol.*, 135, 1, 1981.
233. **Lewin, S.**, Vitamin C and the common cold, *Chem. Br.*, 10, 25, 1974.
234. **Lewin, S.**, Evaluation of potential effects of high intake of ascorbic acid, *Comp. Biochem. Physiol. B.*, 47, 681, 1974.
235. **Lewis, T. L., Karlowski, T. R., Kapikian, A. Z., Lynch, J. M., Shaffer, G. W., George, D. A., and Chalmers, T. C.**, A controlled clinical trial of ascorbic acid for the common cold, *Ann. N. Y. Acad. Sci.*, 258, 505, 1975.
236. **Liljefors, L.**, Vitamin C and the common cold, *Lakartidningen*, 69, 3304, 1972.
237. **Loh, H. S., Odumosu, A., and Wilson, C. W. M.**, Factors influencing the metabolic availability of ascorbic acid. I. The effect of sex, *Clin. Pharmacol. Ther.*, 16, 390, 1974.
238. **Lominski, L.**, Inactivation du bactériophage par l'acide ascorbique, *Soc. Biol.*, 122, 766, 1936.
239. **Lubojacky, M. and Keleti, J.**, Chemoprophylaxis of influenza with Morgalin, *Ther. Hung.*, 17, 127, 1969.
240. **Ludvigsson, J., Hansson, B., and Tibbling, G.**, Vitamin C as a preventative medicine against common colds in children, *5. Afr. Med. J.*, 51, 773, 1977. *Scand J Infect Dis* (correction HH)
241. **McConkey, M. and Smith, D. T.**, The relation of vitamin C deficiency to intestinal tuberculosis in the guinea pig, *J. Exp. Med.*, 58, 503, 1933.

242. McCormick, W.J., Ascorbic acid as a chemotherapeutic agent, *Arch. Pediatr.*, 69, 151, 1952.
243. McCormick, W. J., Vitamin C in the prophylaxis and therapy of infectious diseases. *Arch. Pediatr.*, 68, 1, 1951.
244. Macon, W. L., Citrus bioflavonoids in the treatment of the common cold, *hid. Mcd. Surg.*, 25, 525, 1956.
245. Markwell N. W., Vitamin C in the prevention of colds, *Mcd. J. Aust.*, 2, 777, 1947.
246. Martin, G. J. and Heise, F. H., Vitamin C nutrition on pulmonary tuberculosis. *Am. J. Dig. Dis. Nutr.*, 4, 368, 1937.
247. Martin, L. and Lines, J. G., The megavitamin scene, *Lancet*, 2, 103, 1974.
248. Martin, L. F., Breakdown of tobacco mosaic virus protein, *Proc. 3rd Int. Congr. Microbiol.*, 1939, 281.
249. Masek, J., Hruba, F., Neradilova, M., and Hejda, S., The role of vitamin C in the treatment of acute infection of the upper respiratory pathways, *Ada Vitaminol. Enzymol.*, 28, 85, 1974.
250. Masek, J., Neradilova, M., and Hejda, S., Vitamin C and respiratory infections, *Ce.sk. Gastroenterol. Vyi.*, 26, 337, 1972.
251. Masek, J., Neradilova, M., and Hejda, S., Vitamin C and respiratory infections. *Rev. Czech. Mcd.*, 18, 228, 1972.
252. Mehnert, H., Forster, H., and Funke, U., The effects of ascorbic acid on carbohydrate metabolism. *Ger. Mcd.* 11, 360, 1966.
253. Meier, K., Vitamin C treatment of pertussis, *Ann. Pediatr. (Paris)*, 164, 50, 1945.
254. Mick, E. C., Brucellosis and its treatment, *Arch. Pediatr.*, 72, 119, 1955.
255. Miegl, H., Acute infections of the upper respiratory tract and their treatment with vitamin C, *Wien. Mcd. Wochenschr.*, 107, 989, 1957.
256. Miller, J. Z., Nance, W. E., Norton, J. A., Wolen, R. L., Griffith, R. S., and Rose, R., Therapeutic effect of vitamin C: a co-twin control study, *JAMA*, 237, 248, 1977.
257. Miller, J. Z., Nance, W. E., and Kang, K., A co-twin control study of the effects of vitamin C, *Prog. Clin. Biol. Res.*, 24, 151, 1978.
258. Miller, T. E., Killing and lysis of gram-negative bacteria through the synergistic effect of hydrogen peroxide, ascorbic acid and lysozyme, *J. Bacteriol.*, 98, 949, 1969.
259. Mores, A. Vitamin C. and common cold, *Cesk. Pediatr.*, 29, 414, 1974.
260. Mouriquand, G. and Edel, V. Sur l'hypervitaminose C, *C. R. Soc. Bio!*, 147, 1432, 1953.
261. Mowle, A. F., The vitamin C question. It may be able to stand the test, but can we?, *Aust. Nurs. J.*, 9, 28, 1980.
262. Murata, A., Kitagawa, K., and Saruno, R., Inactivation of bacteriophages by ascorbic acid, *Agric. Biol. Chern.*, 35, 294, 1971.
263. Murata, A. and Kitagawa, K., Mechanism of inactivation of bacteriophage J1 by ascorbic acid, *Agric. Biol. Chern.*, 37, 1145, 1973.
264. Murata, A., Virucidal activity of vitamin C: vitamin C for prevention and treatment of viral diseases, *Proc. 1st Int. Congr. Microbiol. Soc., Sci. Council Jpn.*, 3, 432, 1975.
265. Myrvik, Q., Weiser, R. S., Houglum, B., and Berger, L. R., Studies on the tuberculoinhibitory properties of ascorbic acid derivatives and their possible role in inhibition of tubercle bacilli by urine. *Am. Rev. Tuberc.*, 69, 406, 1954.
266. Naess, K., Vitamin C and the common cold, *Tidsskr. Nor. Laegeforen.*, 91, 666, 1971.
267. Neuweiler, W., Die hypervitaminose und ihre Beziehung zur Schwangerschaft, *Int. Z. Vitaminforsch.*, 22, 392, 1950.
268. Nitsche, W., Vitamin C and its indications, *Med. Monatsschr.*, 27, 454, 1973.
269. Nordbo, K., Vitamin C and the common cold. Report on a recent review of the literature, *Tidsskr. Nor. Laegeforen.*, 96, 894, 1976.
270. Ormerod, M. J., Byron, M. B., Unkauf, M., and White, F. D., Further report on the ascorbic acid treatment of whooping cough, *Can. Med. Assoc. J.*, 37, 268, 1937.
271. Otani, T., On the vitamin C therapy of whooping cough, *Klin. Wochenschr.*, 15, 1884, 1936.
272. Otani, T. Influence of vitamin C (L-ascorbic acid) upon the whooping cough bacillus and its toxin, *Orient. J. Dis. Infants*, 25, 1, 1939.
273. Paez de la Torre, J. M., Ascorbic acid in measles, *Arch. Argent. Pediatr.*, 24, 225, 1945.
274. Patterson, J. W., The diabetogenic effect of dehydroascorbic and dehydroisoascorbic acids, *J. Biol. Chem.*, 183, 81, 1950.
275. Pauling, L., Ascorbic acid, *Lancet*, 1, 615, 1979.
276. Pauling, L., The case for vitamin C in maintaining health and preventing disease. *Mod. Med. (Chicago)*, July, 68, 1976.
277. Pauling, L., Ascorbic acid and the common cold: evaluation of its efficacy and toxicity, *Med. Tribune*, March 24, 1976.
278. Pauling, L., Vitamin C and colds, *New York Times*, January 17, 1971.
279. Pauling, L., Preventive nutrition, *Med. Midway*, 27, 15, 1973.

280. **Pauling, L.**, Early evidence about vitamin C and the common cold, *J. Orthomolec. Psychiatry.*, 3, 139, 1974.
281. **Pauling, L.**, Are recommended daily allowances for vitamin C adequate<sup>7</sup> *Proc. Nail. Acad. Sci. U.S.A.*, 71, 4442, 1974.
282. **Pauling, L.**, Vitamin C and common cold, *JAMA*, 216, 332, 1971.
283. **Pauling, L.**, Megavitamm therapy, *JAMA*, 234, 149, 1975.
284. **Pauling, L.**, The significance of the evidence about U.S.A., ascorbic acid and the common cold, *Proc. Natl. Acad. Sci.*, 68, 2678, 1971.
285. **Pauling, L.**, Ascorbic acid and the common cold, *Am. J. Clin. Nutr.*, 24, 1294, 1971.
286. **Pauling, L.**, Evolution and the need for asc. acid, *Proc. Natl. Acad. Sci. U.S.A.*, 67, 1643, 1970.
287. **Pauling, L.**, Ascorbic acid and the common cold, *Scott. Med. J.*, 18, 1, 1973.
288. **Pauling, L.**, *Vitamin C, the Common Cold and the Flu*, Freeman Press, San Francisco, 1976.
289. **Pena, A., Del Arbol, J. L., and Garcia Torres, J. A.**, Effect of vitamin C on excretion of uric acid, *Nutr. Abstr.*, 34, 195, 1964.
290. **Perla, D. and Marmorsten, J.**, Role of vitamin C in resistance, *Arch. PathoL*, 23, 543, 1937.
291. **Perla, D. and Marmorsten, J.**, Role of vitamin C in resistance, *Arch. PathoL*, 23, 683, 1937.
292. **Perrault, M. and Dry, J.**, Therapeutics in 1973, *Rev. Prat.*, *Froid*, 23, 5221, 1973.
293. **Petter, C. K.**, Vitamin C and tuberculosis, *Lancet*, 57, 221, 1937.
294. **Pfeiffer, L.**, Ascorbic acid therapy of whooping cough, *Helv. Paediatr. Acta*, 2, 106, 1947.
295. **Pfleger, R. and Scholl, F.**, Diabetes and vitamin C, *Wien. Arch. Med.*, 31, 219, 1937.
296. **Pijoan, M. and Sedlacek, B.**, Ascorbic acid in tuberculous Navajo Indians, *Am. Rev. Tuberc.*, 48, 342, 1943.
297. **Pitt, H. A. and Costrini, A. M.**, Vitamin C prophylaxis in Marine recruits, *JAMA*, 241, 908, 1979.
298. **Plate, A.**, Treatment of whooping cough with vitamin C, *KinderaerztL Prax.*, 8, 70, 1937.
299. **Poser, E.**, Large ascorbic acid intake, *N. EngL J. Med.*, 287, 412, 1972.
300. **Preshaw, R. M.**, Vitamin C and the common cold, *Can. Med. Assoc. J.*, 107, 479, 1972.
301. **Querton, M.**, Clinical study of Trimedil in diseases caused by chilling, *Scalpel*, 118, 957, 1965.
302. **Radford, M., DeSavitsch, E., and Sweany, H. C.**, Blood changes following continuous daily administration of vitamin C and orange juice to tuberculosis patients, *Am. Rev. Tuberc.*, 35, 784, 1937.
303. **Rawal, B. D. and McKay, G.**, Inhibition of *Pseudomonas aeruginosa* by ascorbic acid acting singly and in combination with antimicrobials: in-vitro and in-vivo studies, *Med. J. Aust.*, 1, 169, 1974.
304. **Regnier, E.**, The administration of large doses of ascorbic acid in the prevention and treatment of the common cold, Parts I and II., *Rev. Allerg.*, 22, 835, 948, 1968.
305. **Renker, K. and Wegner, S.**, Vitamin C-prophylaxe in der volkswerft stralsund, *Dtsch. Gesundheitswes.*, 9, 702, 1954.
306. **Rhead, W. J. and Schrauzer, G. N.**, Risk of long-term ascorbic acid overdosage, *Nutr. Rev.*, 29, 262, 1971.
307. **Riccitelli, M. L.**, Vitamin C therapy in geriatric practice, *J. Am. Geriatr. Soc.*, 20, 34, 1972.
308. **Rinke, C.**, Vitamin C for bronkospasm, *JAMA*, 245, 548, 1981.
309. **Ritzel, G.**, Critical evaluation of vitamin C as a prophylactic and therapeutic agent in colds, *Helv. Med. Acta*, 28, 63, 1961.
310. **Ritzel, G.**, Ascorbic acid and the common cold, *JAMA*, 235, 1108, 1976.
311. **Robertson, M. G.** Ascorbic acid and the common cold, *JAMA*, 216, 2145, 1971.
312. **Rosenthal, G.**, Interaction of ascorbic acid and warfarin, *JAMA*, 215, 1671, 1971.
313. **Rudra, M. N. and Roy, S. K.**, Haematological study in pulmonary tuberculosis and the effect upon it of large doses of vitamin C, *Tubercle*, 27, 93, 1946.
314. **Ruskin, S. L.**, Calcium cevitamate (calcium ascorbate) in the treatment of acute rhinitis, *Ann. Otol. Rhinol. Laryngol.*, 47, 502, 1938.
315. **Russell W. O. and Galloway, C. P.**, Pathologic changes in the liver and kidneys of guinea pigs deficient in vitamin C, *Arch. PathoL*, 35, 546, 1943.
316. **Sabin, A. B.**, Vitamin C in relation to experimental poliomyelitis, *J. Exp. Med.*, 69, 507, 1939.
317. **Sabiston, B.H. and Radomski, N. W.**, Health problems and vitamin C in Canadian Northern Military Operations, Defence and Civil Institute of Environmental Medicine Report No. 7, 4-R-1012, Government Printing Office, Ottawa, 1974.
318. **Sadun, E. H., Bradin, J. L., and Faust, E. C.**, Effect of ascorbic acid deficiency on the resistance of guinea pigs to infection with: *Endamoeba histolytica* of human origin, *Am. J. Trop. Med.*, 31, 426, 1951.
319. **Sakakura, Y., Sasaki, Y., Togo, Y., Wagner, H. N., Jr., Hornick, R. B., Schwartz, A. R., and Proctor, D. F.**, Mucociliary function during experimentally induced rhinovirus infection in man, *Ann. Owl. Rhinol. Laryngol.*, 82, 203, 1973.
320. **Samborskaja, E. P.**, Effect of large doses of ascorbic acid on course of pregnancy and progeny in the guinea pig, *Nutr. Abstr. Rev.*, 34, 988, 1964.

321. **Samborskaja, E. P. and Ferman, T. I.**, Mechanism of interruption of pregnancy by ascorbic acid, *Nutr. Abstr. Rev.*, 37, 73, 1967.
322. **Sapozhnikov, I. V., Iakovleva, R. E., Cherezova, L. M., and Ignateva, M. F.**, Nonspecific methods of prophylaxis of influenza and other acute respiratory diseases with dibasole and ascorbic acid, *Vopr. Virusol.*, 4, 42, 1976.
323. **Saracci, R., Bardelli, D., and Mariani, F.**, Clinical trials with vitamin C, *lancet*, 1, 400, 1975.
324. **Schade, H. A.**, Beitrag zur Frage des einflusses von Vitamin C (L-ascorbinsaure) auf pigmentierungsvorgänge, *Klin. Wochenschr.*, 14, 60, 1935.
325. **Schneider, G.**, More on the cold war. *Can. Med. Assoc. J.*, 112, 147, 1975.
326. **Schrauzer, G. N. and Rhead, W. J.**, Ascorbic acid abuse: effects of long term'ingcstion of excessive amounts of blood levels and urinary excretion, *Int. J. Vitam. Nutr. Res.*, 43, 201, 1973.
327. **Schulze, E. and Hecht, V.**, Über die wirkung der ascorbinsaure zur diphtherie-formol-toxoid und tetanus toxin, *Klin. Wochenschr.*, 16, 1460, 1947.
328. **Schwartz, A. R., Togo, Y., Hornick, R., Tominago, S., and Gleckman, R.**, Evaluation of the efficacy of ascorbic acid in prophylaxis of induced rhinovirus 44 infection in man, *J. Infect. Dis.*, 128, 500, 1973.
329. **Schwartz, P. L.**, Ascorbic acid in wound healing — a review, *J. Am. Diet. Assoc.*, 56, 497, 1970.
330. **Schwedt, P. R. and Schwerdt, C. E.**, Effect of ascorbic acid on rhinovirus replication in WI—38 cells, *Proc. Soc. Exp. Biol. Med.*, 148, 1237, 1975.
331. **Sciuk, F.** Boxazin in rheumatic lesions. Therapeutic experiences in a rural practice, *Z. Allg.*, 46, 1086, 1970.
332. **Scott, J. E. and Brenner, L.**, Apparent low serum vitamin B12 levels in paraplegic veterans taking ascorbic acid, Proc. 16th Annu. Meet. Am. Soc. Hematol., Chicago, December 1—4, 1973. 125.
333. **Seifter, J.**, Editorial: ascorbic acid and the common cold, *J. Clin. Pharmacol.*, 15, 509, 1975.
334. **Sessa, T.**, Vitamin therapy of whooping cough, *Riforma Med.*, 56, 38, 1940.
335. **Shadrin, A. S., Araslanova, II., Dektere, A. N., Gagarinova, V. M., and Tamarkina, K. N.**, Organization and the results of the early ambulatory treatment of influenza patients. *Sov. Med.* 9, 103, 1980.
336. **Shekhtman, G. A.**, On the significance of continuous addition of vitamin C to food in a military sector, *Voen. Med. Zh.*, 3, 46, 1961.
337. **Siegel, B. V.**, Enhanced interferon response to murine leukaemia virus by ascorbic acid, *Infect. Immun.*, 10, 409, 1978.
338. **Sigal, A. and King, C. G.**, The influence of vitamin C deficiency upon the resistance of guinea pigs to diphtheria toxin, *J. Pharmacol.*, 61, 1, 1937.
339. **Sirsi, M.**, Antimicrobial action of vitamin C on *M. tuberculosis* and some other pathogenic organisms, *Indian J. Med. Sci.*, 6, 252, 1952.
340. **Sokolova, V. S.**, Application of vitamin C in treatment of dysentery, *Ter. Arkh.*, 30, 59, 1958.
341. **Spengler, F.**, Vitamin C und der diuretische effekt bei leberzirrhose, *Muench. Med. Wochenschr.*, 84, 779, 1937.
342. **Spero, L. M. and Anderson, T. W.**, Ascorbic acid and common colds, *Br. Med. J.*, 4, 354, 1973.
343. **Stein, W.**, The role of vitamin C and adrenal cortex hormone in the treatment of pneumococcal pneumonias, *Med. Bull. Veterans Adm.*, 18, 156, 1941.
344. **Steinbach, M. M. and Klein, S. J.**, Vitamin C in experimental tuberculosis, *Am. Rev. Tuberc.*, 43, 403, 1941.
345. **Stone, L.**, *The Healing Factor: Vitamin C Against Disease*, Grosset & Dunlap, New York, 1974.
346. **Stone, L.**, The possible role of mega-ascorbate in the endogenous synthesis of interferon, *Med. Hypotheses*, 6, 309, 1980.
347. **Stott, E. J. and Taylor-Robinson, D.**, The common cold, *Practitioner*, 205, 735, 1970.
348. **Sweany, H. C., Clancy, C. L., Radford, M. H., and Hunter V.**, The body economy of vitamin C in health and disease, *JAMA*, 116, 469, 1941.
349. **Sylvestre, J. E. and Giroux, M.**, Vitamin C therapy of pulmonary tuberculosis. *Laval Med.*, 10, 417, 1945.
350. **Szirmai, F.**, Value of vitamin C in treatment of acute infectious diseases, *Dtsch. Arch. Klin. Med.*, 85, 434, 1940.
351. **Taft, G. and Fieldhouse, P.**, Vitamin C and the common cold, *Public Health*, 92, 19, 1978.
352. **Takahashi, Z.**, *\r\n Nagoya J. Med. Sci.*, 12, 50, 1938.
353. **Tanabe, S.**, Vitamin C content of mucous membranes of paranasal sinuses, *Otolaryngology (Tokyo) (libi Inkoka)*, 35, 25, 1963.
354. **Taylor, G.**, Vitamins in illness, *Br. Med. J.* 1, 292, 1973.
355. **Taylor, T. V., Rimmer, S., Day, B., Butcher, J., and Dymock, I. W.**, Ascorbic acid supplementation in the treatment of pressure sores, *Lancet*, 2, 544, 1974.

356. **Tebrock, H. E., Arminio, J. J., and Johnston, J. H.**, Usefulness of bioflavonoids and ascorbic acid in treatment of the common cold, *JAMA*, 162, 1227, 1956.
357. **Thadda, S. and Hoffmeister, W.**, Die bedeutung des C-Vitamins fur infektionsablauf und krankheitsabwehr, *Z. Klin. Med.*, 132, 379, 1937.
358. **Thomas, H.**, Treatment of fever and influenza infections using Chinavit, *Z. Allg. Med.*, 53, 508, 1977.
359. **Thomas, W. R. and Holt, P. G.**, Vitamin C and immunity: an assessment of the evidence, *Clin. Exp. Immunol.*, 32, 370, 1978.
360. **Tyrrel, D. A. J.**, Cure for all ills?, *Br. Med. J.*, May, 14, 1273, 1977.
361. **Tyrrell, D. A.** The virus causes of coughs and colds, *Helv. Med. Acta*, 47, 52, 1967.
362. **Tyrrell, D. A., Craig, J. W., Meada, T. W., and White, T.**, A trial of ascorbic acid in the treatment of the common cold, *Br. J. Prev. Soc. Med.*, 41, 189, 1977.
363. **Ugarizza, R. G.**, Ascorbic acid in the treatment of leprosy sputicemia, *Arch. Schiffs Tropen. Hyg.*, 43, 33, 1939.
364. **Vallance, S.**, Relationships between ascorbic acid and serum proteins of the immune system, *Br. Med. J.*, 2, 437, 1977.
365. **Van Alyea, O. E.**, The acute nasal infection, *Nebr. State Med. J.*, 27, 265, 1942.
366. **Vargas-Magne, R.**, Vitamin C in treatment of influenza, *El Dia Med.*, 35, 1714, 1963.
367. **Vermillion, E. L. and Stafford, G. E.**, A preliminary report on the use of cevitamic acid in the treatment of whooping cough, *J. Kan. Med. Soc.*, 39, 469, 1938.
368. **Veselovskaya, T. A.**, Effect of vitamin C on the clinical course of dysentery, *Voen. Med. Zh.*, 3, 32, 1957.
369. **Vilter, R. W.**, Nutritional aspects of ascorbic acid: uses and abuses, *West. J. Med.*, 133, 485, 1980.
370. **Vitorero, J. R. B. and Doyle, J.**, Treatment of intestinal tuberculosis with vitamin C, *Med. Wkly.*, 2, 636, 1938.
371. **Vodopija, I.**, Common cold, *Lijec. Vjesn.*, 92, 1055, 1970.
372. **Walker, E.**, Megavitamin research data incomplete but promising, *Mod. Nurs. Home*, 30, 4, 1973.
373. **Walker, G. H., Bynoe, M. L., and Tyrrell, D. A. J.**, Trial of ascorbic acid in prevention of colds, *Br. Med. J.*, 1, 603, 1967.
374. **Wasilewski, A.** Influenza therapy in the practice, *Z. Allg. Med.*, 47, 62, 1971.
375. **Widenbauer, F.**, Toxische Nebenwirkungen von ascorbinsaure C-hypervitaminose<sup>0</sup> *Klin. Wochenschr.*, 15, 1158, 1936.
376. **Williams, H. E.**, Calcium nephrolithiasis and cellulose phosphate, *N. Engl. J. Med.*, 290, 224, 1974.
377. **Willis, G. C.** The influence of ascorbic acid upon the liver, *Can. Med. Assoc. J.*, 76, 1044, 1957.
378. **Wilson, C. W.**, Colds and vitamin C., *Ir. Med. J.*, 68, 511, 1975.
379. **Wilson, C. W.**, Ascorbic acid and colds, *Br. Med. J.*, 2, 698, 1967.
380. **Wilson, C. W.**, Clinical pharmacological aspects of ascorbic acid, *Ann. N.Y. Acad. Sci.*, 258, 355, 1975.
381. **Wilson, C. W.**, Vitamin C and fertility, *Lancet*, 2, 859, 1973.
382. **Wilson, C. W.**, The role of vitamin C and in the prophylaxis of common cold and hay fever, *Acta VitaminoL Enzymol.*, 2, 120, 1980.
383. **Wilson, C. W.**, Vitamin C for common colds, *Lancet*, 1, 586, 1976.
384. **Wilson, C. W.** Vitamin C and the common cold, *Br. Med. J.*, 1, 1470, 1976.
385. **Wilson, C. W.**, Ascorbic acid and the common cold, *Practitioner*, 215, 343, 1975.
386. **Wilson, C. W.**, Ascorbic acid function and metabolism during cold, *Ann. N.Y. Acad. Sci.*, 258, 529, 1975.
387. **Wilson, C. W.**, Colds, ascorbic acid metabolism and vitamin C, *J. Clin. Pharmacol.*, 15, 570, 1975.
388. **Wilson, C. W.**, Vitamin C tissue saturation metabolism and desaturation, *Practitioner*, 212, 481, 1974.
389. **Wilson, C. W.**, Vitamin C and the common cold, *Br. Med. J.*, 1, 669, 1971.
390. **Wilson, C. W.**, The common cold and Vitamin C prophylactic, therapeutic, metabolic and functional aspects, *Acta VitaminoL Enzymol.*, 28, 96, 1974.
391. **Wilson, C. W. and Greene, M.**, The transfer and utilization of vitamin C in human tissues, *Proc. Nutr. Soc.*, 33, 109A, 1974.
392. **Wilson, C. W. and Greene, M.**, The relationship of aspirin to ascorbic acid metabolism during the common cold, *J. Clin. Pharmacol.*, 18, 21, 1978.
393. **Wilson, C. W., Greene, M., and Loh, H. S.** The metabolism of supplementary vitamin C during the common cold, *J. Clin. Pharmacol.*, 16, 19, 1976.
394. **Wilson, C. W. and Loh, H. S.**, Vitamin C metabolism and the common cold, *Eur. J. Clin. Pharmacol.*, 7, 421, 1974.
395. **Wilson, C. W. and Loh, H. S.**, Ascorbic acid and upper respiratory inflammation, *Acta AllergoL*, 24, 367, 1970.
396. **Wilson, C. W. and Loh, H. S.**, Vitamin C and colds, *Lancet*, 1, 1058, 1973.
397. **Wilson, C. W. and Loh, H. S.**, Ascorbic acid and the common cold, *Br. Med. J.*, 4, 166, 1973.
398. **Wilson, C. W. and Loh, H. S.**, Common cold and vitamin C, *Lancet*, 1, 638, 1973.

399. **Wilson, C. W., Loh, H. S., and Foster, F. G.**, Common cold symptomatology and vitamin C, *Eur. J. Clin. Pharmacol.*, 6, 196, 1976.
400. **Wilson, C. W., Loh, H. S., and Foster, F. G.**, The beneficial effect of vitamin C on the common cold, *Eur. J. Clin. Pharmacol.*, 6, 26, 1973.
401. **Woolfe, S. N., Hume, W. R., and Kenney, F. B.**, Ascorbic acid and periodontal disease: a review of the literature, *Periodontal Abstr.*, 28, 44, 1980.
402. **Woolstone, A. S.**, Treatment of the common cold, *Irr. Meet. J.*, 2, 1290, 1954.
403. **Yakovlev, N. N.**, Vitamin B and C requirements during participation in sports, *Vopr. Pitan.*, 8, 3, 1958.
404. **Yonemoto, R. H., Chretien, P. B., and Fehniger, T. F.**, Enhanced lymphocyte blastogenesis by oral ascorbic acid, *Am. Soc. Clin. Oncol.*, 288, 1976.
405. **Zlydnikov, D. M.**, Experience with clinical trials of the new anti-influenza drug rimantadine, *Vrach. Delo.*, 4, 15, 1981.
406. **Zlydnikov, D. M. and Chepuk, E. B.**, Clinical course and principles of intensive treatment of hypertoxic forms of influenza complicated by pneumonia, *Ter. Arkh.*, 48, 45, 1976.
407. **Zlydnikov, D. M., Romanov, I., Rumel, N. B., Vasilevskaia, N. M., and Geiker, V. I.**, Therapeutic effectiveness of rimantadine and antigrippen against A1(H1N1) influenza in the 1977—1978 epidemic, *Vrach. Delo.*, 6, 109, 1981.
408. **Zureick, M.**, Treatment of shingles and herpes with vitamin C intravenously, *J. Prat.*, 64, 586, 1950.
409. **Abbott, P., Abrahams, M., Adams, M. S. M., et al.**, Ineffectiveness of vitamin C in treating coryza, *Practitioner*, 200, 442, 1968.
410. **Albanese, A. A., Wein, E. H., and Mata, L. A.**, Improved method for determination of leucocyte and plasma ascorbic acid of man with application to studies of nutritional needs and effects of cigarette smoking, *Nutr. Rep. Int.*, 12, 271, 1975.
411. **Briggs, M.**, Blood platelet biochemistry in women receiving steroid contraceptives, *Haematologica*, 7, 347, 1973.
412. **Costello, J., Hatch, M., and Bourke, E.**, Enzymatic method for the spectrophotometric determination of oxalic acid, *J. Lab. Clin. Med.*, 87, 903, 1976.
413. **Roe, J. H. and Kuether, C. A.**, Determination of ascorbic acid in whole blood and urine through 2,4-dinitro phenyl hydrazine derivative of dehydro ascorbic acid, *J. Biol. Chem.*, 147, 399, 1943.