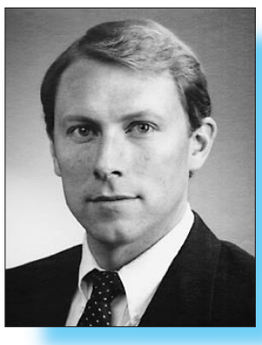
Soft Tissue Research

Early Life Infections Improve the Function of the Immune System



by Daniel J. Murphy, DC, FACO
Vice President of ICA

Dan Murphy graduated magna cum laude from Western States Chiropractic College in 1978, and has more than 26 years of practice experience. He received his Diplomat in Chiropractic Orthopedics in 1986. Since 1982, Dr. Murphy has served as part-time undergraduate faculty at Life Chiropractic College West, where he is currently teaching classes to seniors in the Management of Spinal Disorders.

Dr. Murphy is on the post-graduate faculty of several chiropractic colleges. His post-graduate continuing education classes include "Whiplash and Spinal Trauma," "Neuroimmunology," "Pediatrics," "Phospholipid Neurobiology," "The Neurophysiology of Therapeutic Lasers," and "Nutrition." Dr. Murphy is the coordinator of a year-long certification program (through the International Chiropractic Association) in "Chiropractic Spinal Trauma," now (2005) in its eighteenth year of being offered. He has taught more than 1,000 post-graduate continuing education seminars, including classes in the United States, Canada, Australia, France, England, Portugal, Ireland, Italy, Greece, New Zealand, and South Korea.

Dr. Murphy is a contributing author to the books Motor Vehicle Collision Injuries, *published by Aspen, 1996,* Pediatric Chiropractic, *published by Williams & Wilkins, 1998, and* Motor Vehicle Collision Injuries, *2nd edition, Jones and Bartlett, 2005. Since 1991, Dr. Murphy has written a quarterly column in* The American Journal of Clinical Chiropractic, *with more than 55 columns appearing to date.*

In 1987, 1991 and 1995 Dr. Murphy received the "Post-Graduate Educator of the Year" award, given by the International Chiropractic Association.

In 1997 he received "The Carl S. Cleveland, Jr., Educator of the Year" award, given by the International Chiropractic Association of California.

In 2001, Dr. Murphy was honored by the readers of Dynamic Chiropractic as the top vote receiver for the "Our Virtual Chiropractic Association". He was also awarded "Chiropractor of the Year" by the International Chiropractic Association of California, and "Pediatric Chiropractor of the Year" given by Chiropractic Pediatric University.

In 2003, Dr. Murphy was awarded "Chiropractor of the Year" by Chiropractic Biophysics. This award is most prestigious because Chiropractic Biophysics has more chiropractic research studies published in the scientific literature than any other chiropractic group.

Since 2003 Dr. Murphy is the Vice President of the International Chiropractic Association.

Dr. Murphy reviews articles regarding alternative health issues, which can be accessed through Dr. Murphy's website at www.danmurphydc.com.

A 1998 article published in the journal **THORAX** titled "Early Childhood Infection and Atopic Disorder" notes[1]:

1) Atopic diseases (asthma, hay fever, and eczema in this study) are rapidly rising in westernized communities.
2) The mechanism for this increase in atopic diseases is reduced exposure to microbes.
3) Atopic diseases were significantly statistically linked to immunization with the Pertussis vaccine and to treatment with oral antibiotics in the first two years of life.
4) The authors conclude that exposure to certain infections repress atopic disorders.

A 1999 article published in the journal **THE LANCET** titled "Atopy in Children of Families with an Anthroposophic Lifestyle" notes[2]:

1) The increased prevalence of atopic disorders in children may be associated with changes in childhood infections as related to vaccination programs and antibiotics that alter intestinal microflora.
2) Children who use antibiotics restrictively and have few vaccinations have lower levels of atopic diseases.

Another 1999 article published in the journal **CLINICAL EXPERIMENTAL ALLERGY** titled "Antibiotic use in early childhood and the development of asthma" notes[3]:

1) Antibiotic use is significantly associated with a history of asthma.
2) If antibiotics are used in the first year of life there is a 305 percent increased risk of developing asthma when compared with children who had never used antibiotics.
3) If antibiotics are used only after the first year of life there is a 64 percent increased risk of asthma when compared with children who had never used antibiotics.
4) The greater the number of courses of antibiotics given to children, the greater the risk that they will develop asthma.
5) "Early childhood infection may have a protective role against the subsequent development of asthma."
6) The treatment of infant infections with antibiotics could play a role in the development of childhood asthma.
7) Antibiotics increase the risk of asthma by "reducing the intensity and duration of acquired bacterial infections."
8) There is a "temporal association between the increasing prevalence of asthma and the increasing use of antibiotics throughout the developed world."

A 2000 article published in the journal **ALLERGY** titled "The immunology of fetuses and infants: What drives the allergic march?" notes[4]:

1) Atopy refers to allergic conditions which include hay fever, asthma, and eczema, and are associated with the production of IgE antibodies to common environmental allergens.
2) The risk of atopic disease early in life is particularly high in Western industrialized countries.
3) The critical period that influences the development of atopy is the first years of life.
4) "A decline in certain childhood infections or a lack of exposure to infectious agents during the first years of life could have caused the recent epidemic of atopic disease and asthma."

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5) Recovery from natural measles infection reduces the incidence of atopy and allergic responses to house-dust mites to half that seen in vaccinated children.
6) Bacterial infections are modulators of the atopic march.
7) The use of antibiotics during the first two years of life increases the risk of asthma.

Another 2000 article published in the journal **THE NEW ENGLAND JOURNAL OF MEDICINE** titled "Siblings, Day-Care Attendance, and the Risk of Asthma and Wheezing during Childhood" notes[5]:
1) Young children with older siblings and those who attend day care are at increased risk for infections, which in turn may protect against the development of allergic diseases, including asthma.
2) Exposure of young children to older children at home or to other children at day care protects against the development of asthma and frequent wheezing later in childhood.
3) The incidence and the prevalence of asthma among children have increased dramatically in the past three decades, making it the most common chronic disease of childhood in the United States, and a decrease in infections during early childhood may be responsible.
4) "The incidence of asthma among children who had two or more older siblings or who attended day care during the first six months of life was significantly lower than that among children who had one sibling or no siblings and who did not attend day care."
5) Bacterial or viral infections occurring during infancy may provide important signals to the newborn's maturing immune system.

This article generated an editorial titled **DAY CARE, SIBLINGS, AND ASTHMA — PLEASE, SNEEZE ON MY CHILD**, that included the following comments[6]:
1) "Parents generally agree that children who attend day care or who have older siblings have more frequent infections. They may be surprised to learn, however, that this tendency may protect their younger children from asthma."
2) "A common factor underlying the increased prevalence of asthma and atopic disease may be a reduction in early exposure to microbes, with a lasting influence on immune development."
3) An important signal for normal postnatal immune system maturation is exposure to microbes. Deprivation of these signals in infants may allow a change that increases the risk of eventual asthma and atopic disease.

A 2001 article published in the journal **ALLERGY** titled "The causes of the increasing prevalence of allergy: Is atopy a microbial deprivation disorder?" notes[7]:
1) "The atopic diseases, i.e., primarily, bronchial asthma, atopic dermatitis, and allergic rhinoconjunctivitis, were rare a few decades ago, but constitute today an increasingly severe public health problem."
2) "The increase in the prevalence of the allergic diseases, especially in those born after 1960, is almost explosive, and there are now epidemics of allergic diseases in many countries."
3) "The prevalence of asthma in children and young adults has tripled and quadrupled in many industrialized countries during the last two decades."
4) Allergic sensitization may occur in utero. *[Important, as noted below.]*
5) Allergic sensitization that occurs early in childhood tends to persist throughout life.
6) The very first months of life are of crucial importance in allergy development.
7) "The more children in the family, the more infections they encounter" and this may help to prevent allergy.
8) Viral infections protect against allergic disease.
9) "If the assumption that early viral or bacterial infections protect against the development of allergic diseases is correct, vaccination should lead to an increase of allergic disorders."
10) Atopy is correlated to MMR vaccination (measles, mumps, rubella) and with the administration of antibiotics.
11) There is a significant relationship between treatment with antibiotics during the first two years of life and later development of allergy.
12) "Multiple courses of antibiotic treatment are associated with higher allergy prevalence, and the finding that treatment with broad-spectrum antibiotics appears to be more likely associated with allergy development than is ordinary penicillin."
13) "Microbial agents do indeed play a protective role in the development of allergic disease."
14) Childhood infections lower allergy prevalence, especially bacterial infections.
15) "From an evolutionary perspective [INNATE], it is perhaps not unexpected that the immune system, which over millions of years has adapted to a heavy microbial load, may react in an 'inadequate' way upon a sudden, radical decrease of this load, caused by vaccinations, antibiotics, and especially improved hygienic conditions."
16) "A change in the 'microbial load' seems to be the most probable cause of the increase in the allergic diseases."

A 2002 article published in the journal **ALLERGY** titled "The rise of atopy and links to infection" notes[8]:
1) This article explores the evidence that "exposure to certain antibiotics and public health immunizations in early life" are the cause of atopic disorders.
2) This article also explores the evidence that "certain microbial exposures [infections] can inhibit experimental allergy."
3) "Certain natural infections promote immune regulatory processes that can restrain atopy."
4) 45 percent of children in some countries may be suffering from atopic disorders.
5) "Antibiotic receipt in early life is associated with more subsequent atopy and asthma."
6) Antibiotics given early life (<24 months of age) for any clinical indication "predicted substantially more subsequent atopic disorder."
7) 80 percent of children who subsequently display atopic disorder received antibiotics at two months.
8) There is a "direct promotion of atopy by antibiotic receipt."
9) Certain immunizations may also increase subsequent atopy, including pertussis in the DPT vaccine and the measles/mumps/rubella (MMR) vaccine.
10) The limited microbial exposure caused by hygiene, antibiotics, and vaccinations may also explain the rising of inflammatory disorders, such as insulin dependent diabetes, in developed countries.
11) Microbial exposure "may play a key role in allowing the immune system to develop protective responses."

Another 2002 article published in the **NEW ENGLAND JOURNAL OF MEDICINE** titled "Environmental expo-

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sure to endotoxin and its relation to asthma in school-age children" notes[9]:

1) "Asthma is the most common chronic disease in childhood and accounts for substantial morbidity and health care costs."

2) One can have exposure to microbes or to nonviable parts of microbes and not become infected.

3) "Environmental exposure to microbial products may have a crucial role during the maturation of a child 's immune response."

4) Exposure to microbial products is "associated with a significant decrease in the risk of hay-fever, atopic sensitization, atopic asthma, and atopic wheeze in childhood."

5) "The innate immune system responds [favorably, for ones entire life] to a high microbial burden."

6) Exposure to microbial products strongly affects the development of atopy and childhood asthma.

This article generated an editorial titled **EAT DIRT — THE HYGIENE HYPOTHESIS AND ALLERGIC DISEASES**, that included the following comments[10]:

1) There is an epidemic of both autoimmune diseases and allergic diseases.

2) "One theory proposed to explain this increase in the prevalence of autoimmune and allergic diseases is that it results from a decrease in the prevalence of childhood infection."

Another 2002 article published in the same issue of the **NEW ENGLAND JOURNAL OF MEDICINE** titled "Mechanisms of Disease: THE EFFECT OF INFECTIONS ON SUSCEPTIBILITY TO AUTOIMMUNE AND ALLERGIC DISEASES" notes[11]:

1) Infectious agents can suppress allergic (asthma, rhinitis, and atopic dermatitis) and autoimmune (multiple sclerosis, insulin-dependent type 1 diabetes, and Crohn's disease) disorders.

2) The incidence of these disorders began to increase in the 1950s [coincidentally with the availability of antibiotics and vaccinations] and continues today.

3) There has been a significant decrease in the incidence of many infectious diseases in developed countries as a result of antibiotics, vaccination, and improved hygiene.

4) Early childhood infections change immune system maturation.

5) The administration of antibiotics to children increases the risk of asthma and allergy.

6) Decreased exposure of women to viruses before pregnancy may subsequently reduce the degree of protection against these viruses afforded to their newborns.

7) "Vaccination strategies should be examined in the context of the hygiene hypothesis."

8) Vaccinations may prevent 'protective' infections and thus have an unfavorable effect.

9) "In addition to the problem of antibiotic resistance, unnecessary treatment with antibiotics could reduce the degree of physiological immunostimulation afforded by commensal bacteria."

10) "There is a certain irony in the fact that we must now search for new ways to reproduce the infectious diseases against which we have been fighting with great success over the past three decades."

11) These mechanisms might extend to other immune disorders, like non-Hodgkin's lymphomas [cancer], which is also increasing in developed countries.

Another 2002 article published in the **AMERICAN JOURNAL OF RESPIRATORY AND CRITICAL CARE** titled "The Importance of Prenatal Exposures on the Development of Allergic Disease" notes[12]:

1) A decreased exposure to infection may play an important role in the etiology of allergic disease, but there is little data on the impact of change in microbial exposure during pregnancy on the child's risk of developing allergic disease.

2) Exposure to antibiotics in utero is associated with an increased risk of asthma, eczema and hay fever in a dose-related manner.

3) Exposure to antibiotics in utero is a important risk factor in the development of allergic disease.

4) Because the immune system develops in utero, exposure to antibiotics during pregnancy is associated with an increased incidence of allergic diseases.

5) "This effect did not appear to depend on the type of antibiotic prescribed or the trimester the antibiotics were prescribed."

A 2005 article published in the **BRITISH MEDICAL JOURNAL** titled "Day care in infancy and risk of childhood acute lymphoblastic leukaemia" notes[13]:

1) Reduced exposure to infection in the first few months of life increases the risk of developing acute lymphoblastic leukaemia.

2) Several other investigators have reported reduced risks of acute lymphoblastic leukaemia in children with many infections.

3) Reduced infections in the first year of life provides "inadequate priming of the naïve immune system" and "may precipitate a highly dysregulated immune response."

4) "Similar associations have been reported for type 1 diabetes and allergies in children."

5) "Some degree of early exposure to infection seems to be important for child health."

PUBLISHED RESPONSES THAT FOLLOWED THIS ARTICLE INCLUDE:

"Striking the right balance between protecting our children from damaging or life threatening infections whilst exposing them to a 'sufficient dose' of milder infections to prime their immune systems, has far-reaching social and behavioural connotations."

— Roger C Parslow, Senior Research Fellow, Paediatric Epidemiology Group, University of Leeds

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[This was my favorite response, by a chiropractor, Dr. Richard Lanigan]

"Gilham et al's findings should not come as a surprise, however they have stopped short of questioning the possible benefits to the immune system of what were once called 'normal childhood infections' and now, are extremely rare."

"Prevention of infectious diseases is seen universally as beneficial to the health of society. However few have considered the possibility that natural selection and these diseases, played a role in the development of the immune system to fight more deadly diseases."

Dr. Lanigan then cites references to support the following points:

1) Children who take fewer antibiotics and a lower rate of immunization also have a lower prevalence of asthma, eczema and hay fever than the controls.

2) Children who contract measles are less likely to develop asthma, a disease that was rare thirty years ago and now kills 2000 people per year in the UK.

3) DPT vaccination increases the risk of allergy.

4) There is a specific inverse relationship between contracting measles and atopic diseases.

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5) Children who did not have the DPT or polio immunization did not suffer from asthma or other allergic illnesses while 23 - 30 percent of the control group did.

6) Children who suffered infections in the first year of life are less likely to develop insulin dependent diabetes.

7) Immunized children have twice the incidence of type-1 diabetes.

—Richard Lanigan, Chiropractor

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"The study by Gilham et al. confirms the hypothesis that reduced exposure to infection early in life has effects on the maturing immune system that increase the risk of acute lymphoblastic leukaemia (ALL) and possibly other malignancies."

"The immunological basis of this increased risk is uncertain but it could be the result of the inadequate development of immune surveillance mechanisms that detect cancer-specific antigenic determinants."

"Gilham et al. postulate that the inadequate priming of the immune system due to a lack of exposure to infection permits subsequent infections by unknown exogenous agents, probably viruses, to cause immune dysregulation leading to acute lymphoblastic leukaemia."

— John M.Grange
Centre for Infectious Diseases
and International Health,
University College London.

— Bernd Krone
Klaus F. Kölmel
Departments of Virology and
Dermatology,
University of Göttingen, Germany

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"Before 1920, acute leukemia among children was a rare event. A significant peak-age incidence (2-5 years) appeared after 1940. Since then, the incidence rate of childhood leukemia has been more or less remarkably stable. This means that some leukemogenic factor must have been introduced in children's lives some time around 1940."

"It is a highly striking coincidence that at the same year the introduction of immunization against diphtheria was began on a national scale."

— Petar I. Ivanovski, pediatrician
University Childrens Hospital,
Belgrade

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"I wonder if our friends at the CDC, NIH, WHO etc. have considered adding leukemia in addition to diabetes, Guillian-Barre', Autism, SIDS, Arthritis, Thrombocytopenia, Encephalitis, Death, SBS, Distressed Breathing, Thimerosal Accumulation in Brain (TAB), delayed speech, tics, seizures, hallucinations, dizziness, Hemorrhagic Vasculomyelinopathy etc. etc. etc. to 'highly coincidental' adverse reactions from the long list of mass immunizations."

"Do you think parents would be informed during their child's well visit of any of the above?"

"In particular, MMR advice from WHO is to jab unless the child is in serious risk of dying. And the only reason given not to jab in this instance is that the death may "incorrectly" be attributed to the MMR. And we wonder why most all serious adverse vaccine reactions are attributed to 'coincidence'. As clearly seen in this WHO advice—take great lengths to disclaim any adverse vaccine reaction."

— L. Travis Haws, Dentist
Lakewood CO 80228

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"I draw attention to a letter entitled 'Immunization and Childhood Leukaemia' in which it was shown that Leukaemia in children in Brisbane Children's Hospital from 1958 to 1964 showed a significant statistical association with immunization against diphtheria, tetanus and whooping cough."

In view of Dr Ivanovski's observations that the incidence of childhood leukaemia increased with the introduction of DPT vaccination it is virtually certain that, if investigated, they will find the group with Leukaemia also shows a statistically significant increase in immunization with DPT vaccine.

— Michael Innis, Director
Medisets International

KEY POINTS FROM THIS ARTICLE INCLUDE:

1) A number of studies going back nearly two decades propose that a deficit of exposure to infectious agents in infancy delays immune system development and is consequently responsible for the childhood peak of acute lymphoblastic leukaemia at age 2-5 years.

2) Sending infants to day care increases the incidences of infections, which plays an important role in immune system development, and reduces the incidence of acute lymphoblastic leukaemia.

3) In this study, infants in day care without older siblings had a 39 percent reduction in acute lymphoblastic leukaemia.

4) Infants in day care with older siblings had a 62 percent reduction in acute lymphoblastic leukaemia.

5) "The greatest reduction in risk of acute lymphoblastic leukaemia was seen in children who attended formal day care during the first three months of life." [Very Important: this indicates that the first 3 months of life are a critical time for infants to actually get infections so that their immune system develops appropriately and strongly, which reduces the incidences of acute lymphoblastic leukaemia and other diseases]

6) Not being infected ("immunological isolation") in infancy increases the risk of acute lymphoblastic leukaemia.

7) Nine other case-control studies of childhood leukaemia suggest a reduction in risk of around 30-40 percent for day care attendance and increased infections.

8) Not being infected ("immunological isolation") in the first year of life provides "inadequate priming of the naïve immune system" and "may precipitate a highly dysregulated immune response."

9) Increased infections in the first few months of life reduce chances of developing acute lymphoblastic leukaemia.

10) "The most plausible interpretation is that this protection comes from exposure to common infections." [This means that exposure to common infections is a good thing in terms of immune system development and reduced incidence of acute lymphoblastic leukaemia.]

11) Exposure to common childhood infections also reduces incidence of type-1 diabetes and allergies.

12) "Some degree of early exposure to infection seems to be important for child health." **[Very Important]**

KEY POINTS IN THE RESPONSES TO THIS ARTICLE INCLUDE:

1) The prevention of infectious diseases [with antibiotics and vaccinations] impairs the development of the immune system so that it is less capable of fighting more deadly diseases, including cancer.

2) Antibiotics and vaccination of children (especially DPT) increase asthma, eczema, hay fever, allergies, atopic disorders, insulin dependent diabetes.

3) Immunized children have twice the incidence of type-1 diabetes.

4) Mass immunizations have been linked to leukemia, diabetes, Guillian-Barre', Autism, SIDS, Arthritis, Thrombocytopenia, Encephalitis, Death, SBS, Distressed Breathing, Thimerosal Accumulation in Brain, delayed speech, tics, seizures, hallucinations, dizziness, Hemorrhagic Vasculomyelinopathy etc. etc. etc.

5) There is a significant statistical association with immunization against diphtheria, tetanus and whooping cough and acute lymphoblastic leukaemia.

SUMMARY POINTS FROM DAN MURPHY

These articles, published in the world's finest medical journals by many individuals from multiple continents, have several common points of agreement:

1) A person's immune system begins to develop and mature in utero.

2) The first years, and especially the first few months, of a persons life are also critical times in the lifelong development and maturation of the immune system.

3) The most important factor directing the proper development and maturation of the immune system so that it will best serve a person for life is exposure to bacteria and actually being infected with a variety of bacteria and viruses.

4) Antibiotics, beginning in utero, and certain vaccinations against common childhood diseases received in the first few years of life deprive the developing and maturing immune system of the stimulus required for optimal lifelong function.

5) The consequences of the microbial depravation are increased incidences of allergies, hay fever, eczema, asthma, multiple sclerosis, type-I diabetes, and leukemia.

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