Student:

Amelia

Topic:

**What is the role of Omega-3 in neurological development and subsequently ADHD?**

From the beginning I wanted to focus my research on my passion for health and child development.

It was during my initial background research that I came across an article that mentioned that poly-unsaturated fatty acids may be a better approach to the treatment of Attention Deficit Hyperactivity Disorder.

My teachers were always mentioning the importance of approaching research with an open mind. As my Research Project progressed I began to understand why.

As the depth of my understanding grew, my focus began to change.

I sought out interviews with experts such as nutritionists, including those who specialise with ADHD, a psychologist who was very much opposed to treatments other than drugs and a food scientist.

Key findings began to emerge.

I got to understand that polyunsaturated fatty acids are divided into two main groups:

Omega-3 and Omega-6 and the balance of consumption has been greatly affected by modern western diet.

On average 17 times more Omega-6 is consumed than it should be.

This became a crucial finding to my research as Omega-6 causes brain inflammation which is problematic for children with ADHD.

I discovered that children experiencing rapid neurological development throughout the last trimester of pregnancy and first two years of life, during this time it is crucial that children receive adequate Omega-3 in their diet particularly Omega-3 DHA as DHA increases nerve cell membrane flexibility, assisting the release of neuro-transmitters responsible for neurological development and function.

If DHA deficient, a child’s brain is unable to effectively release the neuro-transmitter dopamine, which is responsible for focussing attention and controlling behaviour.

As these are two key symptoms of ADHD, it is suggested that DHA-deficiency increases the likelihood of developing ADHD symptoms.

As I began to synthesise my key findings, I realised that what had begun as an investigation into the neurological development of children had become an important health, public health issue.

I discovered that there is insufficient understanding of, and education on, the importance of Omega-3 for neurological development, along with the most beneficial quantity to consume.

Additionally, the cost of Omega-3 rich products such as salmon and walnuts, may result in certain socio-economic groups having a higher risk of developing Omega-3 deficiency and consequently ADHD.

Meeting the challenge of being resourceful was not only beneficial to my Research Project but also my development as a researcher.

During my Research Project, I interviewed nine different specialists – in person, over the phone, on Skype, through email – including accredited practicing dieticians, clinical psychologists, pharmacists and food scientists.

I wrote five different letters to ADHD organisations, forums and various primary school newsletter committees, in order to locate willing parents of children with ADHD to participate in my survey.

I also undertook action research, as I explained before, these skills were all new to me, as up until this point, up until this year, my education had never called for me to use them.

Furthermore, the Research Project was unlike any other subject I had done before, rather than just learning information, I learnt to become a researcher.

Through secondary analysis, I learnt how to differentiate between sources, to identify credibility and bias, through sending interview requests, arranging appointments and formulating relevant interview questions, I learnt how to appropriately communicate with professionals from all over the world.

Through surveying the families of children with ADHD and how multi-dimensional ethics really is, I learnt the importance of approaching people sensitively with the utmost care, respecting their confidentiality and not pushing questions where they did not feel comfortable answering.

I learnt that their needs and rights always came before my desire for information. I also learnt how to identify and respond to both challenges and opportunities, a skill I practised through my Research Project and hope to continue practicing in all life experiences.

Moreover, I learnt that an informed person can have a powerful voice in society and take steps to influence change. I feel that I have become an Omega-3 activist, the passion I developed for my topic encouraged me to send my outcome to the South Australian Minister for Education and Child Development, Jennifer Rankine, South Australian ADHD organisations, and the pre-natal and maternity sections of the Women’s and Children’s, Ashford, Burnside and Calvary hospitals. I hope to highlight to them the importance of endorsing education on Omega-3 in order to prevent a deficiency and enhance neurological development.

When I received a reply from the Parent Education Coordinator at the Women’s and Children’s Hospital with the final comment “keep spreading the word”, I was excited to learn that my outcome addresses a current and very public health issue.

Perhaps the most relevant skill I learnt through completing the Research Project was being able to identify what I needed to learn and methods to learn it. Not studying chemistry, nutrition or psychology was a problem I faced, as knowledge of aspects of these topics was needed to fully comprehend my research and develop key ideas.

To bring my research together, I was required to have a comprehensive understanding of the neuro-transmitter and the drug form of dopamine, the importance of neural cell membrane flexibility, the chemical composition of Omega-3 molecules and which areas of the brain relates to the symptoms of ADHD.

Did those words go in one ear and out the other? If so, you know exactly how I felt initially.

But now I can proudly say that I used a number of resources and taught myself exactly what I needed to know. This is an important form of learning that the Research Project has brought to students. My learning was just in time, rather than just in case. The Research Project allows for the development of skills to obtain the knowledge you need when you need it. This is an important skill and thinking process which is useful in not just for the Research Project but every aspect of life. I also became more capable in many ways, for example, my outcome contained a large quantity of complex chemistry and physiology which may have formed a potential barrier to my intended audience - which included mothers and families.

I was required to develop my critical and creative thinking capability to find a way to get the message across. I learnt to use unfamiliar computer programs in order to convert scientific concepts into easy-to-understand diagrams, which I believed enhanced my outcome and assisted the readers’ ability to comprehend key concepts.

I discovered the information is not always readily available to you and it’s important to have the skills to go out and get it.

I learnt that the best interviews are the ones you approached armed with knowledge and an open mind.

Being knowledgeable about the topic gives you confidence to look for information or links to previous information and also allows you to politely challenge and question experts in order to really develop and synthesise key findings.

The Research Project was a truly rewarding subject, I enjoyed that it is flexible, allowing me to control what I wanted to research, how I wanted to undertake the research and how I wanted to present it.

Researching a topic of your choice is motivating and allows for the development of a passion which consequently drives you to step out of your comfort zone and do your best.

It was wonderful to meet and cooperate with a range of professionals from all around the world who are eager to assist and genuinely excited when they find a 17-year old student shares their passion. However most of all it’s empowering that the Research Project is our own, we undertook the research, we analysed and synthesised the information gathered and we formulate the conclusions.

Our Research Projects don’t reword someone else’s findings, they express our own findings.

As a student, this is a powerful set of skills to develop and an invaluable feeling.