## **HIGHLIGHTS**

- In Canada, there are over 60 brand name vaccines available to use.
- There is scientific literature that supports vaccines are safe.
- There is scientific literature that supports vaccines are not safe.
- Some of the ingredients found in vaccines can make people sick.
- Fluviral is used to reduce the risk of getting influenza.
- Gardasil is used to reduce the risk of getting HPV.
- MMR II is used to reduce the risk of getting measles, mumps and rubella.
- Harmful ingredients are found in nearly all vaccines.

## VACCINE INGREDIENTS

Updated January 28, 2019

## **VACCINE CONTENTS**

In Canada, there are over 60 brand name vaccines used to immunize people. Although the Canadian government cites scientific literature to support that vaccines are safe and effective, there is also scientific literature that supports that vaccination may harm people. There is reason to exercise caution because some of the ingredients found in vaccines have the potential to make people sick.

## WHICH INGREDIENTS SHOULD I BE CONCERNED ABOUT?

One of the vaccines currently available for use is Fluviral. It is used against influenza, and it contains thimerosal, egg protein, disodium hydrogen phosphate heptahydrate, formaldehyde, potassium chloride, potassium dihydrogen phosphate, sodium chloride, sodium deoxycholate, sucrose and water for injection. Gardasil, used to combat human papillomavirus, contains aluminum containing adjuvant, yeast protein, L-histidine, polysorbate 80, sodium borate, sodium chloride and water for injection. MMR II is used to reduce the risk of getting measles, mumps and rubella. This vaccine contains neomycin, phenol red, porcine gelatin, residual components of chick embryo cell cultures, fetal bovine serum, medium 199 with Hank's salts, monosodium L-glutamate monohydrate, potassium phosphate dibasic, potassium phosphate dibasic, recombinant human albumin, sodium bicarbonate, sodium phosphate dibasic, sodium phosphate monobasic, sorbitol, sucrose and water for injection.

Through thorough investigation of the ingredients listed in many vaccines including Fluviral, Gardasil and MMR II, any researcher can see the potential risks associated with vaccination. To find out more about vaccine ingredients and their health risks, read the table below.



Ingredient	Health Concerns	References
Thimerosal	Poisonous in small amounts. Can contribute to many harmful effects even at the levels currently administered in vaccines.	Geier, D. A., Geier, M. R., King, P. G., Hooker, B. S., Dórea, J. G., Kern, J. K., & Sykes, L. K. (2015). Thimerosal: Clinical, epidemiologic and biochemical studies. Clinica Chimica Acta, 444, 212-220. doi:10.1016/j.cca.2015.02.030
	Kills kidney cells and stimulates pro-fibrotic mechanisms.	Carneiro, M. F. H., Morais, C., Small, D. M., Vesey, D. A., Barbosa, F., & Gobe, G. C. (2015). Thimerosal induces constrained and fibratic charges to kidenar
	Immunized mothers can pass ethylmercury from thimerosal through their breastmilk to their babies. Babies' hair accumulate	induces apoptotic and fibrotic changes to kidney epithelial cells in vitro. Environmental Toxicology, 30(12), 1423-1433. doi:10.1002/tox.22012
	ethylmercury.	Marques, R. C., Dórea, J. G., Fonseca, M. F., Bastos, W. R., & Malm, O. (2007). Hair mercury in breast-fed infants exposed to thimerosal-preserved vaccines.
	May disturb brain development.	European Journal of Pediatrics, 166(9), 935-941. doi:10.1007/s00431-006-0362-2
	**According to the CDC "For two childhood vaccines, thimerosal is used to prevent the growth of microbes during the manufacturing process. When thimerosal is used this way, it is removed later in the process. Only trace (very tiny) amounts remain. The only childhood vaccines today that	Olczak, M., Duszczyk, M., Mierzejewski, P., Bobrowicz, T., & Majewska, M. D. (2010). Neonatal administration of thimerosal causes persistent changes in mu opioid receptors in the rat brain. Neurochemical Research, 35(11), 1840-1847. doi:10.1007/s11064-010-0250-z
	have trace amounts of thimerosal are one DTaP and one DTaP-Hib combination vaccine." <u>https://www.cdc.gov/vaccines/hcp/patient-</u> <u>ed/conversations/downloads/vacsafe-thimerosal-color-</u> <u>office.pdf</u>	Pletz, J., Sánchez-Bayo, F., & Tennekes, H. A. (2016). Dose-response analysis indicating time-dependent neurotoxicity caused by organic and inorganic mercury—Implications for toxic effects in the developing brain. Toxicology, 347-349, 1-5. doi:10.1016/j.tox.2016.02.006
	**Page 15 Part 1 of the Canadian Immunization Guide lists more than 3 vaccines that contain thimerosal** <u>https://www.canada.ca/en/public- health/services/publications/healthy-living/canadian- immunization-guide-part-1-key-immunization- information/page-15-contents-immunizing-agents- available-use-canada.html</u>	
Egg Protein & Chick Embryo Cell Cultures	Although a rare event, <i>Campylobacter jejuni</i> has been demonstrated to pass from chickens into their eggs and survive.	Sahin, O., Kobalka, P., & Zhang, Q. (2003). Detection and survival of campylobacter in chicken eggs. Journal of Applied Microbiology, 95(5), 1070-1079. doi:10.1046/j.1365-2672.2003.02083.x
	In some cases, <i>Campylobacter jejuni</i> infection results in the severe polyneuropathy Guillain–Barré syndrome. One journal article has even gone to say that the link between the two is firmly established.	Heikema, A. P., Islam, Z., Horst-Kreft, D., Huizinga, R., Jacobs, B. C., Wagenaar, J. A., Endtz, H. P. (2015). Campylobacter jejuni capsular genotypes are related to guillain-barré syndrome. Clinical Microbiology and Infection, 21(9), 852.e1-852.e9.
	Guillain–Barré syndrome may be triggered by infections or vaccinations.	Nachamkin, I., Allos, B. M., & Ho, T. (1998). Campylobacter species and guillain-barré syndrome. Clinical Microbiology Reviews, 11(3), 555-567. doi:10.1128/CMR.11.3.555
		Israeli, E., Agmon-Levin, N., Blank, M., Chapman, J., & Shoenfeld, Y. (2012). Guillain–Barré Syndrome–A classical autoimmune disease triggered by infection or vaccination. Clinical Reviews in Allergy & Immunology, 42(2), 121-130. doi:10.1007/s12016-010-8213-3
Formaldehyde	Fomaldehyde has been associated with allergic disorders among Japanese pregnant women.	Matsunaga, I.; Miyake, Y.; Yoshida, T.; Miyamoto, S.; Ohya, Y.; Sasaki, S.; Tanaka, K.; Oda, H.; Ishiko, O.; Hirota, Y.; et al. Ambient formaldehyde levels and allergic disorders among Japanese pregnant women: Baseline data from the Osaka maternal and child health
	Known to be a human carcinogen. Found in engine exhaust, tobacco smoke, natural gas, waste incineration and in many other places.	study. Ann. Epidemiol. 2008, 18, 78–84. Gerberich, R. Seaman, G. (2013). Formaldehyde https://doi.org/10.1002/0471238961.06151813070518
Aluminum	Aluminium exposure has been linked to autism spectrum disorder.	02.a01.pub3 Mold, M., Umar, D., King, A., & Exley, C. (2018). Aluminium in brain tissue in autism. Journal of Trace Elements in Medicine and Biology, 46, 76-82. doi:10.1016/j.jtemb.2017.11.012
	May be a causal link between aluminum in vaccines and autism.	

	Macrophagic myofascitis lesions associated with aluminum hydroxide in vaccines. Myalgia onset subsequent to vaccination. Aluminum hydroxide persists for a long time in tissues. Aluminum hydroxide is an immunostimulatory compound.	Tomljenovic, L., & Shaw, C. A. (2011). Do aluminum vaccine adjuvants contribute to the rising prevalence of autism? Journal of Inorganic Biochemistry, 105(11), 1489-1499. doi:10.1016/j.jinorgbio.2011.08.008 Gherardi, R. K., Coquet, M., Cherin, P., Belec, L., Moretto, P., Dreyfus, P. A., Authier, F. J. (2001). Macrophagic myofasciitis lesions assess long-term persistence of vaccine-derived aluminium hydroxide in muscle. Brain : A Journal of Neurology, 124(Pt 9), 1821-1831. doi:10.1093/brain/124.9.1821
Yeast Protein	<ul> <li>Yeast behaves much in the same way as cancer cells such as the metabolic reprogramming in cancer cells is similar to the physiology of fermenting yeast cells.</li> <li><i>C. albicans</i> can produce carcinogenic byproducts, trigger inflammation, induce Th17 response and mimic other molecules.</li> <li>Very similar proteins and genes that promote the growth of cancer cells. Consider this quote from the last article: "signaling pathways regulated by RAS in yeast cells led to the discovery of properties that were often found interchangeable with RAS proto-oncogenes in human pathways"</li> </ul>	<ul> <li>Natter, K., &amp; Kohlwein, S. D. (2013). Yeast and cancer cells - common principles in lipid metabolism. Biochimica et biophysica acta, 1831(2), 314-26.</li> <li>Ramirez-Garcia, A., Rementeria, A., Aguirre-Urizar, J. M., Moragues, M. D., Antoran, A., Pellon, A., Hernando, F. L. (2016). Candida albicans and cancer: Can this yeast induce cancer development or progression? Critical Reviews in Microbiology, 42(2), 181.</li> <li>Cazzanelli, G., Pereira, F., Alves, S., Francisco, R., Azevedo, L., Dias Carvalho, P., Preto, A. (2018). The yeast saccharomyces cerevisiae as a model for understanding RAS proteins and their role in human tumorigenesis. Cells, 7(2), 14. doi:10.3390/cells7020014</li> </ul>
Polysorbate 80	<ul> <li>New procoord of the second of the s</li></ul>	https://toxnet.nlm.nih.gov/cgi- bin/sis/search/a?dbs+hsdb:@term+@DOCNO+4359 Gough WB et al; J Cardiovasc Pharmacol 4(3) 375 (1982). Available from, as of December 23, 2009 Kiricuta I et al; Rev Roum Embryol Cytol, Ser Cytol 8(2) 29 (1971)
Sodium Borate	Documented effects: skin irritant, may induce cell hypoxia, nausea, vomiting, diarrhea, mild peripheral vascular collapse, mild mental confusion, flushed skin, drowsiness, lethargy, gastroirritability, possible hair loss, toxic to reproduction and development	https://toxnet.nlm.nih.gov/cgi- bin/sis/search/a?dbs+hsdb:@term+@DOCNO+328
Phenol Red	Exhbits estrogenic activity. Note that prolonged exposure to estrogens likely predisposes women to breast cancer. Can affect the differentiation of bone marrow stromal cells.	<ul> <li>Berthois, Y., Katzenellenbogen, J. A., &amp; Katzenellenbogen, B. S. (1986). Phenol red in tissue culture media is a weak estrogen: implications concerning the study of estrogen-responsive cells in culture. Proceedings of the National Academy of Sciences of the United States of America, 83(8), 2496- 500.</li> <li>Węsierska-Gądek, J., Schreiner, T., Maurer, M., Waringer, A., &amp; Ranftler, C. (2007). Phenol red in the culture medium strongly affects the susceptibility of human MCF-7 cells to roscovitine. Cellular &amp; Molecular Biology Letters, 12(2), 280-293. doi:10.2478/s11658- 007-0002-5</li> <li>Still, K., Reading, L., &amp; Scutt, A. (2003). Effects of phenol red on CFU-f differentiation and formation. Calcified Tissue International, 73(2), 173-179. doi:10.1007/s00223-002-2076-4</li> </ul>

Porcine Gelatin	This ingredient is gelatin derived from pigs and is used as a stabalizer. There may be risks associated with the quality of the gelatin allowing for bacteria to survive processing. Causes the most allergic reactions compared with other vaccine components	https://www.bbc.com/news/health-45939514 De Clerck, E., Gevers, D., De Ridder, K., & De Vos, P. (2004). Screening of bacterial contamination during gelatine production by means of denaturing gradient gel electrophoresis, focussed on bacillus and related endospore-forming genera. Journal of Applied Microbiology, 96(6), 1333-1341. doi:10.1111/j.1365- 2672.2004.02250.x Chung, E. H. (2014). Vaccine allergies. Clinical and Experimental Vaccine Research, 3(1), 50-57. doi:10.7774/cevr.2014.3.1.50 Kelso JM, Greenhawt MJ, Li JT, et al. Adverse reactions to vaccines practice parameter 2012 update. J Allergy Clin Immunol 2012;130:25–43.
Fetal Bovine Serum	Four viral contaminants have been found in unprocessed and commercial preparations of fetal bovine serum. Contaminants include bacteriophage, infectious bovine rhinotracheitis, parainfluenza-3 and bovine viral diarrhea virus. Risk of nanobacteria contamination. Risk of prion contamination.	<ul> <li>Erickson, GA., Bolin, SR., Landgraf JG. (1991). Viral contamination of fetal bovine serum used for tissue culture: risks and concerns. (PMID:1665460)</li> <li>Simonetti, A. B., Englert, G. E., Campos, K., Mergener, M., David, C. d., Oliveira, A. P. d., &amp; Roehe, P. M. (2007). Nanobacteria-like particles: A threat to cell cultures. Brazilian Journal of Microbiology, 38(1), 153-158. doi:10.1590/S1517-83822007000100032</li> <li>Chou, M. L., Bailey, A., Avory, T., Tanimoto, J., &amp; Burnouf, T. (2015). Removal of transmissible spongiform encephalopathy prion from large volumes of cell culture media supplemented with fetal bovine serum by using hollow fiber anion-exchange membrane chromatography. PloS One, 10(4), e0122300.</li> </ul>
Monosodium glutamate	MSG was associated with adverse side effects in animals including induction of obesity, diabetes, hepatotoxic, neurotoxic and genotoxic effects.	Kazmi, Z., Fatima, I., Perveen, S., & Malik, S. S. (2017). Monosodium glutamate: Review on clinical reports. International Journal of Food Properties, 20(sup2), 1807-9. doi:10.1080/10942912.2017.1295260

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