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Vaccines protect by inserting active substances (cells or molecules) that can quickly control repetitive viruses or activate their toxic components. Immune-induced antibodies are actually antibodies — produced by B lymphocytes — that are able to directly bind toxins or pathogens. Some diseases, such as cold sores, are mild. But others, such as smallpox or polio, can cause life-altering changes. They can even lead to death. That is why preventing your body from getting these diseases is so important.

The vaccines currently available are highly developed, with little or no understanding of how they activate the immune system. However, there is more to antibody mediated protection than the high number of antibody titers produced by the vaccine. The quality of those antibodies (e.g., their thickness, specificity, or ability to slow down) has been identified as a determining factor in efficiency. Long-term immunity requires persistent antibodies against immunosuppression and / or retention of immune immune cells that can regenerate quickly and effec-

However, throughout most of history, vaccines have been developed through empirical research without the involvement of orthopedic sur

geons. There is a great need today for improved understanding of the immune system to develop vaccines that are difficult to ca

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