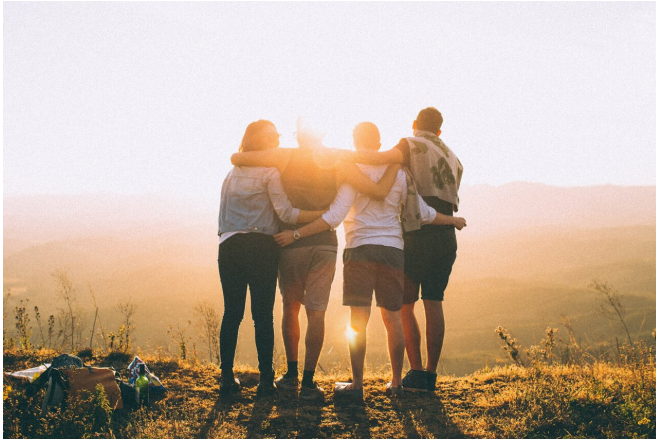


Best friends forever? How the adolescent brain reacts to good friends

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During adolescence, some young people have stable best-friend relationships, while others change best friends frequently. Development psychologist Lisa Schreuders has studied the brains of young adolescents: "It seems that friendships in your early years can have consequences for your friendships later in life." Her article on the research, written together with Berna Güro?lu and other colleagues, has been published in *Nature Communications*.

"There's a lot going on in adolescence," Schreuders explains. "Friendships become closer, and the nature of these friendships also changes. We wanted to find out whether we could identify different development paths from a neuroscientific perspective. Or, in other words, how do the brains of [young people](#) who have stable best friendships react differently from young people with unstable best friendships?"

Brain activity

Schreuders' research focused on a specific area of the [brain](#), the [ventral striatum](#). This region of the

brain responds strongly to reward, which could be anything from winning a game, for example, to doing something that you enjoy, like listening to your favorite music. For Schreuders' research, the young people in the study were asked to play a game three times within a period of four years. When young people with a stable best friendship win money for their best friend, the activity in the ventral striatum at first increases and then declines in the [development phase](#) from 8 to 30 years. We don't see this same curve in adolescents without a stable best friendship.

Bond of friendship

According to Schreuders, the focus on stable friendships increases during adolescence and best friends become more important. "At the start of your development, it's important first to work on your social network and to assemble a larger group of young friends around you. A little later in adolescence, the need for a stable best friend becomes stronger. We also see that the stability of the friendship is related to the bond between the friends. For the group with stable best friendships, the bond with your best friend remains strong throughout the whole adolescent period. For the group with unstable best friendships, the bond with new best friends becomes less strong as people get older. It appears that the kind of relationships you have in your younger years has consequences for your later friendships."

Quality

At the start of the research, the young people were asked: "Who is your best friend? You're now going to win money for him or her." After this, they filled in a questionnaire about the quality of their friendships. In the group with stable best friendships, the response always referred to the same person, but in the group where best friendships changed, the young people talked about different friends. According to Güro?lu, the neural

activity that can be measured in the brain is also a personal characteristic of a young person. "The development in the pattern of brain activity of a young person with a stable best friend is different from that of a young person who doesn't have such a stable friendship. We see from their brain activity that these young people react differently, and we also see differences in the quality of friendships between the two groups."

Braintime—The developing brain

A very large group of young people in a broad age range were monitored over a number of years, and measured at various points in time. At the start of the study, the youngest was eight years old, and by the end, the oldest was 30. Lisa Schreuders' Ph.D. research, supervised by Berna Güro?lu and Eveline Crone, was part of the large-scale Leiden Braintime project that has since been concluded. Schreuders is now a post-doctoral researcher at the Vrije Universiteit in Amsterdam.

Friendship during the pandemic

Schreuders believes that a stable friendship is a special kind of relationship, which takes extra effort to maintain. "That can be more difficult in the present corona times." Güro?lu thinks it will be different for people who are able to maintain a best friendship than for people who have difficulty keeping a best friend: "They will deal with things differently in these more challenging times." Schreuders stresses that this is a descriptive study, where you can't say what's better, but you can say what's different. "We have studied a typical group of young people in a particular phase of their development, all of whom succeeded in creating a best friendship. These findings help us understand how [friendships](#) change during adolescence."

More information: Schreuders, E., Braams, B.R., Crone, E.A. et al. Friendship stability in adolescence is associated with ventral striatum responses to vicarious rewards. *Nat Commun* 12, 313 (2021). doi.org/10.1038/s41467-020-20042-1

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