

# Design toots flute player injury prevention

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Classical musicians suffer playing-related injuries at a surprisingly high rate, so a Queensland University of Technology (QUT) student has created a device to help.

Dharawan Noller, a QUT industrial design graduate, designed the "fluteclip+shirt" device during her studies to warn [flute](#) players when they were holding a risky posture at the most formative and habit-forming stage of their career - when they were beginner musicians.

Dharawan, who played the flute during primary and high school, said the unobtrusive flute clip clipped onto the flute close to the mouth piece, and contained sensors which, in tandem with a second concealed device in a t-shirt, monitored and gave feedback on the player's posture and instrument's position.

"I interviewed musicians and people in the medical field and found every instrument has a risk of injury," Dharawan said.

"Woodwind players have a high risk of injury and flute players hold their body in a unilateral position, which is ergonomically poor, since they hold the instrument above their shoulders.

"Musicians usually hold a static position as they play and complete repetitive actions for long periods of time, which can push muscles, ligaments and tendons beyond their physical limit.

"This is exacerbated by a lack of knowledge of managing their bodies and potential injuries, but these injuries are preventable."

Dharawan said the best time to teach musicians about preventing injuries was when they were first learning their instruments, usually in primary school.

"Primary school-aged students are an ideal target group for teaching about optimal posture and position to prevent injury," she said.

"My device could help them develop the right habits as they play."

Dharawan said the flute clip had a sensor that detected when the instrument was being played and three coloured lights. A green light indicated an optimal [posture](#) and instrument position, a red light indicated a risky position held for 30 seconds or longer, and a blue light reminded players to rest after a pre-programmed length of time, recommended to be every 10 minutes.

"When musicians are practicing in a band, they usually have breaks in the music where they do not need to play and can regularly rest their body," she said.

"But when they are practising alone, they may play for long periods of time without a break.

"It is important while practising to take regular breaks and put the flute down and give the body a shake to relieve tension in the muscles."

Dharawan said the next stage for her fluteclip+shirt would be to build a working prototype and test it in context with beginner flute players.

Provided by Queensland University of Technology

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