

# Put prema antifragnim programima kardiovaskularnoga specijalističkog usavršavanja tijekom i nakon pandemije bolesti COVID-19: izazovi i ublaživanje učinaka krize

## Moving Towards Antifragile Cardiovascular Training Programs During the COVID-19 Pandemic and Beyond: Challenges and Mitigations

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**CITATION:** *Cardiol Croat.* 2022;17(1-2):9-11. | <https://doi.org/10.15836/ccar2022.9>

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**TO CITE THIS ARTICLE:** Dakhil ZA. Moving Towards Antifragile Cardiovascular Training Programs During the COVID-19 Pandemic and Beyond: Challenges and Mitigations. *Cardiol Croat.* 2022;17(1-2):9-11. | <https://doi.org/10.15836/ccar2022.9>

**TO LINK TO THIS ARTICLE:** <https://doi.org/10.15836/ccar2022.9>

*Složeni sustavi slabe, ili čak bivaju uništeni,  
kad su lišeni stresora.*

Nassim Taleb

*"Complex systems are weakened, even killed,  
when deprived of stressors."*

Nassim Taleb

Pandemija uzrokovana virusom uzročnikom bolesti COVID-19 znatno je poremetila pružanje kardioloških zdravstvenih usluga,<sup>1</sup> a posljedično i programe specijalističkog usavršavanja u cijelome svijetu, zbog smanjenja broja kardioloških postupaka i transfera specijalizanata u specijalizirane bolnice ili na druge odjele (jedinice za intenzivnu njegu) za zbrinjavanje COVID-19 bolesnika.<sup>2-4</sup> Mentorstva i mogućnosti za umrežavanje znatno su smanjene, kao i prilike za istraživački i akademski rad, a nepovoljan učinak pandemije registriran je i na mentalno i fizičko zdravlje specijalizanata. U kontekstu takvih izazova ključno je da programi kardiološkoga specijalističkog usavršavanja ne ciljaju samo na **robustnost** (sustav može apsorbirati i oporaviti se od šokova bez većih negativnih posljedica) i **otpornost** (sustav može funkcionirati i prilagoditi se šokovima putem dinamičnih promjena kako bi se nosio s novim potrebama)<sup>5,6</sup>, nego usvajaju i **antifragilnost** (sustav se može prilagoditi šokovima i stresorima te pritom ojačati).<sup>7</sup> To bi trebao biti krajnji cilj u eri virusa uzročnika bolesti COVID-19 i nakon nje, kako bi se održala kvaliteta kardiološkoga usavršavanja te ostvarili posljedični pozitivni učinci na kardiološke usluge i postupke.

Kad se Taleb koristi izrazom „antifragilnost“, on opisuje sustave koji mogu „izvući korist od šokova“ i koji „napreduju i rastu kad su izloženi

The coronavirus disease-2019 (COVID-19) pandemic has significantly disrupted cardiology services<sup>1</sup> and subsequently fellowship training worldwide, due to the decline in volume of cardiac procedures and re-allocating fellows to front-line services and COVID-19 designated hospitals or areas of need (intensive care units).<sup>2-4</sup> Mentorship and networking opportunities declined remarkably, as did research and academic opportunities, aside from the impact of the pandemic on the physical and mental health of fellows. In the context of such challenges, there is a crucial need for cardiology fellowship programs to extend beyond **robustness** (the system can absorb and recover from shocks with no major negative consequence) and **resilience** (the system can function and adapt to the shocks with dynamic changes to cope with needs)<sup>5,6</sup> by adopting **antifragility** (the system can adapt the shock and stressors and become stronger).<sup>7</sup> This should be our ultimate goal in the COVID-19 era and beyond, in order to maintain cardiology training competency with subsequent positive impacts on cardiac services and procedures.

When Taleb used the term “antifragility”, he described the systems that can “benefit from shocks” and “thrive and grow when exposed to volatility, randomness, disorder, and stressors and love adventure, risk, and uncertainty”.<sup>8,9</sup>

**RECEIVED:**

January 14, 2022

**UPDATED:**

February 14, 2022

**ACCEPTED:**

February 28, 2022



nepostojanosti, nasumičnosti, neredu i stresorima te koji vole avanture, rizik i nesigurnost<sup>8,9</sup>

Usprkos dramatičnim pozitivnim učincima cjepiva protiv bolesti COVID-19, ne čini se da će pandemijska kriza uskoro završiti jer države pate od više uzastopnih valova virusa uzročnika bolesti COVID-19, pogotovo zbog novih varijanti koje se neprestano pojavljuju (pri čemu omikron varijanta uzrokuje najnoviji val). Zbog toga je stvaranje antifragilnoga zdravstvenog sustava ključno da bi sustavi ne samo preživjeli već i rasli i napredovali tijekom pandemije. Dvije su točke koje treba imati na umu: *prvo*, okolina koju zdravstvena ustanova pruža specijalizantima pri usavršavanju određuje kakve se zdravstvene usluge mogu pružati bolesnicima, te, *drugo*, da su specijalizanti u jedinstvenoj poziciji u borbi protiv ove pandemije, pa moramo biti predani održavanju integriteta i kvalitete specijalističkog usavršavanja iz kardiologije.

U ovom pismu predlažemo određene mjere kojima bi se ostvario antifragilni program usavršavanja uspostavljanjem specifičnog okvira za osiguravanje kompetencije specijalizanta uvođenjem određenih praktičnih koraka u profesionalnim i akademskim aspektima njihovih karijera (Slika 1).

Usprkos činjenici da pandemije kao što je ova uzrokuju izniman stres i pritisak na zdravstvene sustave, one također mogu pružiti priliku za učenje i izgradnju novih okvira unutar sustava koji ne samo da se odupiru krizi nego kroz nju mogu i rasti. Virtualna znanost, bolja primjena simulacijske poduke, spoznaja koliko je bitna prioritizacija kardioloških zdravstvenih usluga, važnost kardioloških timova i provedba kardioloških usluga u krizi, uvođenje telemedicine, široka primjena društvenih medija u profesionalnom napredovanju te međunarodna znanstvenoistraživačka suradnja usprkos nedostatku komunikacije licem u lice: sve su to lekcije koje smo naučili u ovoj pandemiji i koje, ako se pravilno primijene, pružaju sliku nove ere u kardiološkom usavršavanju, istraživanju i liječenju.

Despite the dramatic positive impacts of COVID-19 vaccines, it does not seem that the pandemic crisis will end soon, given that countries are suffering multiple subsequent COVID-19 waves, especially with the new strains keep appearing (with Omicron causing the latest wave). This makes building antifragile healthcare system crucial, so that the systems not only survive but also thrive during the pandemic. Two points should be kept in mind: *firstly*, the training environment provided by a healthcare facility to its trainees determines the healthcare services it can provide to patients, and *secondly*, the fellows have a unique position in confronting this pandemic, so we have a commitment to maintaining cardiovascular fellowship training integrity and competency.

In this letter, we propose certain measures to achieve the antifragile training program by establishing a specific framework to support FITs competency through the implementation of certain practical steps across professional and academic aspects of FITs careers (Figure 1).

Despite the fact that crises such as the COVID-19 pandemic create extreme stress on healthcare systems, they can also create opportunities to learn and build new system frameworks that not only resist the crisis but benefit from it. Virtual science, better application of simulation training, learning how important is to prioritize cardiac services, importance of heart teams and flow of cardiac services in crisis, telemedicine implementation, wide use of social media in professional advancement, research collaboration beyond geographical borders despite absence of in-person communication: all these are lessons learned from this pandemic, and, if applied properly, will map a new era in cardiovascular training, research, and care.

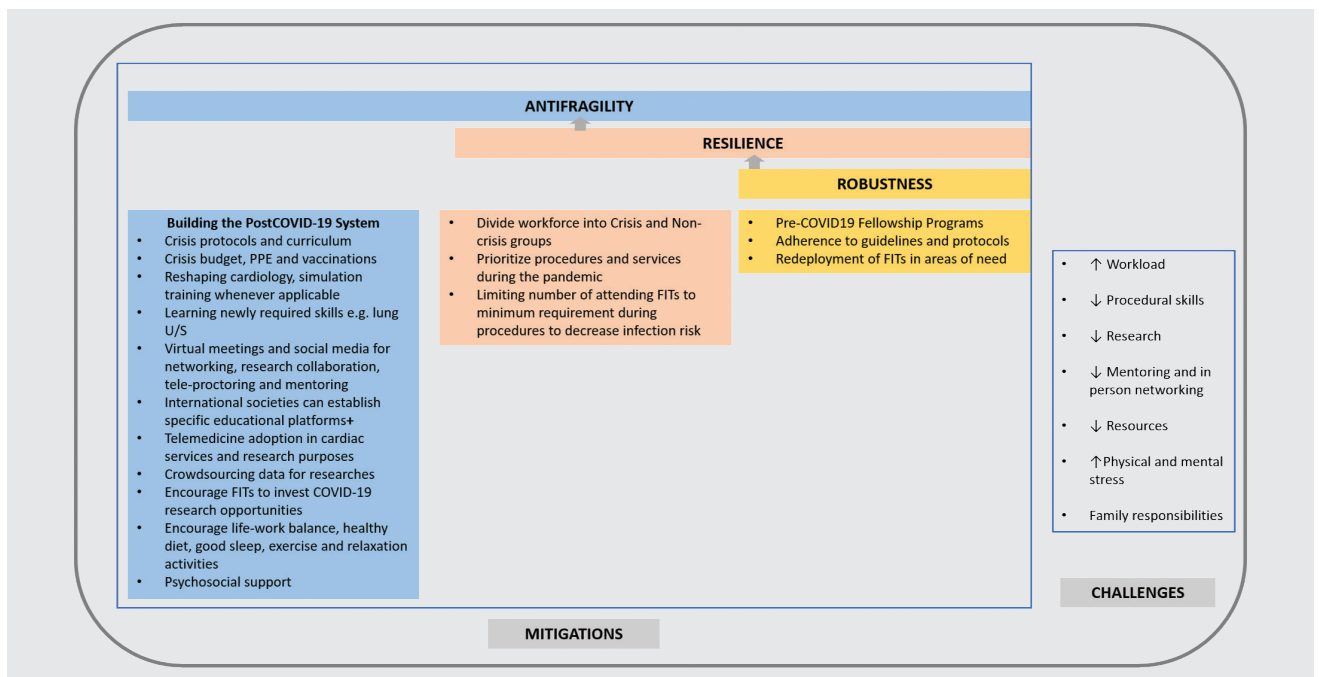


FIGURE 1. Recommendations to implement the antifragile cardiovascular training program during COVID-19 pandemic and beyond.

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