

EDITORIAL

# PREVENTING FRAILTY PROGRESSION DURING THE COVID-19 PANDEMIC

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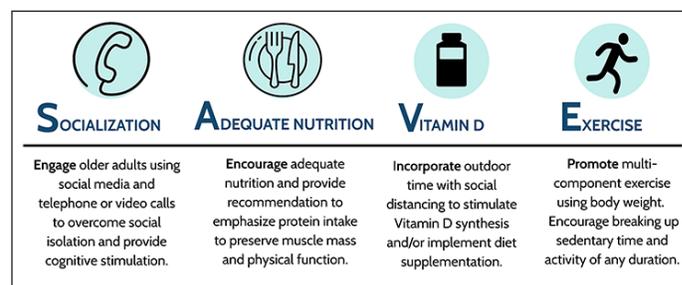
High rates of SARS-CoV-2 infection and mortality in long term care (LTC) facilities epitomize the contextual and biological risk of those frail and vulnerable among us (1). Much ado has been given to the vulnerability of older adults during the COVID-19 pandemic, but this vulnerability likely has much more to do with the reduced physiological resilience inherent to frailty status rather than chronological age per se (2). While strict measures to protect those who are frail are warranted, without careful consideration, these strategies will lead many older adults out of the frying pan and into the fire. The harsh reality is many at-risk adults will face disproportionate social isolation, depression, malnutrition, reduced access to care, decreased physical activity, and increased sedentary time as a result of infection prevention measures. Therefore, even frail adults who do not contract COVID-19, will undoubtedly experience reduced quality of life, accelerated frailty progression and worse clinical outcomes (3, 4).

Recent commentaries have highlighted the potential health crises the pandemic restrictions may exacerbate in older adults. Lippi et al. discuss the increased risk for cardiovascular disease as a result of social distancing induced physical inactivity (5). Brooke et al. explore strategies to overcome the negative impact of isolation (6), and Jimenez Pavon et al. suggest mitigating aging and disease progression by increasing the frequency and duration of physical activity (7). Holistic health maintenance to address frailty during the pandemic requires an amalgamation of these approaches. For example, increasing physical activity has numerous benefits; however, physical activity is only part of the picture and adding proper nutrition could potentiate these benefits. As frailty is characterized by physiological declines across a variety of systems, interventions and recommendations to slow its progression should also come in the form of broad-based approaches. Given the uncertainty surrounding the length of time infection prevention measures will be in place, it is essential to empower at-risk adults and their caregivers with strategies known to slow the progression of frailty while still mitigating COVID-19 exposure risk.

Focusing on accepted general health interventions specifically for frailty from consensus statements (8, 9) and adapting these to the current pandemic scenario will be critical for maintaining the health of our pre-frail and frail population

regardless of SARS-CoV-2 infection. We have summarized consensus recommendations relevant during the COVID-19 pandemic in a figure to help SAVE frail older adults from frailty progression and health declines (Figure 1).

**Figure 1**  
SAVE model for preventing frailty progression



## Socialization

There is increasing recognition of the health benefits associated with socialization and interaction in older adults (10). Social distancing precautions will mean that these interactions, along with cognitive stimulation, will likely have to be overcome through technology such as social media and telephone or video calls. Making efforts to provide older frail adults with technology to use social media platforms and adequate instruction on their use is critical.

## Adequate Nutrition & Protein Supplementation

Maintaining adequate nutrition is vital in order to prevent malnutrition (defined as an unintentional, nutritional intake imbalance but not necessarily a decreased intake) (11) – a known risk factor associated with frailty (12). Malnutrition can lead to loss of lean muscle mass (sarcopenia) and muscle function (dynapenia) with aging (13, 14). As such, strategies to support adequate nutrition is a potentially modifiable factor that can support health in adults with vulnerability due to frailty. For example, evidence-based recommendations for optimal dietary protein intake in older people recommend that frail older adults consume at least 1.2-1.5 grams of protein per kg body weight

per day can help to preserve muscle mass and physical function (15).

### Vitamin D

In older populations with vitamin D deficiency, supplementation of vitamin D has been suggested as a means of reducing adverse outcomes (8). While few trials have directly examined the effect of Vitamin D intervention on frailty status, cross-sectional studies in older adults have demonstrated improvements in physical performance (16). Spending increased time indoors during the COVID-19 pandemic could exacerbate Vitamin D deficiency in older adults. Trying to incorporate outdoor time while safely being exposed to the sun and/or supplementing the diet with Vitamin D in those who are deficient may ameliorate some declines in health during the pandemic. Outdoor time while maintaining social distancing precautions would also promote reduced sedentary time while providing psychological benefits (17).

### Exercise, Physical Activity & Reduced Sedentary Time

Exercise recommendations for pre-frail and frail older adults include multi-component exercise with an emphasis on resistance training supplemented by aerobic exercise with balance and flexibility work (18). Although the optimal dose of physical activity is uncertain for frail adults, international physical activity guidelines for older adults recommend trying to achieve 150 minutes of moderate-vigorous aerobic physical activity with strength training on at least two days per week (19). To make activities as accessible as possible, older frail adults should be provided with instruction on simple, bodyweight exercises such as chair stands or chair exercises, and can incorporate lifting household items in a safe manner. In addition, small goals to increase steps per day can be achieved through pedometers or phone apps to increase motivation (20).

As devoted exercise time may become increasingly unrealistic to achieve during the pandemic, a greater emphasis should also be placed on reducing sedentary time to mitigate frailty progression. Sedentary behaviors lead to frailty deterioration under normal circumstances (21). With individuals sheltering in place it must be stressed that physical activity of any duration will positively impact overall health across multiple systems (22).

Disseminating recommendations to maintain the health of these pre-frail and frail older adults despite the current obstacles will require creative thinking and a concerted effort, especially as frail adults will likely be the last to reintegrate from social distancing approaches (23). While it is essential to keep frail populations free from SARS-CoV-2 infection risk, keeping health maintenance efforts in mind will be critical for not only for frail adults, but the population as a whole. Otherwise, we may see continued healthcare stress even as we exit the pandemic secondary to the measures meant to keep those at

risk safe. The future does not have to be frail; rather, we can implement strategies to help SAVE frail older adults from frailty progression and health declines.

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