When you look it up in the literature, some consider different tx options for a fracture:
1. Conservative tx 2. Non surgical tx 3.surgical tx
(It's the more used classification for fracture management)
While some others say that surgical and non surgical is the only classification there is.

1. **Conservative** means only soft diet and analgesia, and following up the pt for the pain or even any alterations in occlusion (if the pain increases or the occlusion gets worse, we consider the other tx options). It's indicated when we have a non displaced fracture and the occlusion is fine.

2. **Non surgical** means closed reduction and inter maxillary fixation. So you don't open the part surgically, you only reduce the fractured bone in its place and use the fixation as a splint (like they do in orthopedics sometimes). It’s indicated when we have a fracture with a mild displacement, so we return the occlusion the way it was and put screws or arch wires (inter maxillary fixation without opening a flap).. it's the best tx for mandibular fractures. We leave the inter maxillary fixation from 6 weeks to 2 months in adults depending on the case. So by IMF we achieve reduction of the fracture, leave it for 6 weeks at least for healing to occur.

Types of IMF:
\* eyelet wiring: you fix a wire on upper teeth and another on the lowers, then with a 3rd wire you fix them together (not used anymore, they now use elastics to fix them)
\* archwire: two metallic bars fixed on upper and lower teeth, then fixed together by wires.
N.B: If we use wires, it's a rigid IMF, if we use elastics it's a non rigid (or elastic) IMF.
\* screws: 2 screws in the maxilla and the mandible, with a wire fixing them together.

Remember! We don't consider inter maxillary fixation (IMF) in pts with epilepsy, respiratory problems, severe displacement, or when proper occlusion cannot be obtained. So not all cases fit for closed reduction.

3. **Surgical** (open reduction and internal fixation- ORIF) means I open the injured part to put a plate or a screw as fixation or by any other mean that is put directly on the bone, named *osteosynthesis*. So why do we put a plate in an area, or 2 screws, or one screw in another? There're certain principles we follow..

Principles of osteosynthesis: (In short, the weaker the bone, the stronger the fixation should be)

 1) We take the history and do the examination, if we know that the end result of tx would be optimal healing coz of favorable conditions, good contact and quality of bone that allow it to SHARE the forces directed on it with the screw or the plate fixed on it, then I'm gonna depend on a LOAD-SHARING osteosynthesis.

2) If the pt was diabetic (uncontrolled diabetes, increasing the risk of infection), or taking bisphosphonate medication, or a simple fracture but the pt has insulin resistance diabetes or on bisphosphonates, or the local factors weren't favorable like in comminuted fractures for instance.. all these are suggesting a tx that includes a LOAD-BEARING osteosynthesis, coz in this case the bone isn't in an optimal healing condition and cannot bear any forces, and the fixation mean would have to do the job entirely.

A mini plate or a screw or transosseous wiring are **load-sharing** coz they cannot bear all the forces and would actually share it with the bone. There's also the lag screw (was used before and still is coz it's cheap and not bulky), it's used when the fracture is oblique and the screw should be perpendicular to the line of fracture. Another one is compression plate (heavy plates that come in small and large sizes , not used anymore), also gives us a non rigid or semi rigid fixation.

Meanwhile the **load-bearing** osteosynthesis utilizes only one fixation mean, a reconstructive plate, applied on the lower border of the mandible by an extraoral incision to have a good access.
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Types of fixation:
1. Rigid, precludes any inter fragmental movement (or even micro movement) between the two bony pieces. Like using 2 mini plates, one mini plate and a lag screw, 1 large compression plate, 2 small compression plates, 1 plate with archwire IMF. All these has 2 points of fixation, thus rigid, regardless the scheme of fixation.
2. Non rigid (or semi rigid in british literature) , allows inter fragmental movement.
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Champy's principle:
Champy studied all the forces affecting the mandible after a fracture incidence, and concluded that most forces are concentrated in the parasympheseal area and condyles (where the forces would be torsional).. so in any pt with a fracture that is anterior to the mental foramen or in the condyle area, we put 2 mini plates. And in any pt with a fracture in an area between the mental foramen and the sigmoid notch, single plate would be sufficient.
BUT, champy's principle only applies to load-sharing osteosynthesis scenario, coz they were only considering ideal and favorable bone conditions at his time. So this principle isn't applicable for all types of fractures; only the load-sharing conditions.
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The doctor then showed a trauma case, the pt had a gunshot and it passed the condyle causing a condylar fracture and went all the way through the palate to hit angle of the mandible causing a notch, and it stayed there… it's a gunshot injury so it's infected… and by looking at the x ray again there's disruption in the condylar area, but the angle of the mandible has no disruption thus no fracture (to be classified as a fracture it should cross the superior and inferior border of tha mandible, which isn't the case here), so we only have 1 fracture which is the condylar fracture, and the classification of fracture would be (…smth I didn't hear or the doctor didn't say it),
This is very important treatment-wise, if there is no disruption of the occlusion and the pt can bite then inter maxillary fixation would be enough. Meanwhile if there was a fracture at the angle then I should put a reconstructive plate.. that's why learning to read the x ray properly is essential in trauma cases.
For the condylar fracture we made an extraoral incision at the level of TMJ to reduce and fix the condyle in place.