CT (clotting time): time from start of measurement until initiation of clotting
=> initiation of clotting, thrombin formation, start of clot polymerisation

CFT (clot formation time): time from initiation of clotting until a clot firmness of 20mm is detected
=> fibrin polymerisation, stabilisation of the clot with thrombocytes and F XIII

MCF (maximum clot firmness): firmness of the clot
=> increasing stabilisation of the clot by the polymerised fibrin, thrombocytes as well as F XIII

ML (maximum lysis): reduction of the clot firmness after MCF in relation to MCF
=> stability of the clot (ML < 15%) or fibrinolysis (ML > 15% within 1h)
## ROTEM® Reference values

<table>
<thead>
<tr>
<th>test name (reagent)</th>
<th>CT (s)</th>
<th>CFT (s)</th>
<th>α Angle</th>
<th>A10(mm)</th>
<th>A15(mm)</th>
<th>A20(mm)</th>
<th>A25(mm)</th>
<th>MCF(mm)</th>
<th>CLI 30(%)</th>
<th>ML (%)²</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTEM</td>
<td>100-240</td>
<td>30-110</td>
<td>70-83</td>
<td>44-66</td>
<td>48-69</td>
<td>50-71</td>
<td>50-72</td>
<td>50-72</td>
<td>94-100</td>
<td>&lt; 15</td>
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<td>HEPTEM</td>
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<td>34-159</td>
<td>63-83</td>
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<td>48-69</td>
<td>50-71</td>
<td>50-72</td>
<td>50-72</td>
<td>94-100</td>
<td>&lt; 15</td>
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<td>APTEM</td>
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<td>40-65</td>
<td>94-100</td>
<td>&lt; 15</td>
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</tr>
</tbody>
</table>

*Comparison with INTEM. A better clot quality in HEPTEM as compared to INTEM indicates the presence of heparin or heparin-like anticoagulants in the sample.*

*Comparison with EXTEM. A better clot formation with ap-TEM® or APTEG-S when compared to ex-TEM® is an early sign of hyperfibrinolysis.*

*MCF < 9 mm is a sign of decreased fibrinogen or disturbed clot polymerisation.*

*MCF > 25 mm is a sign of elevated fibrinogen levels (which may lead to a normal EXTEM or INTEM in spite of thrombocytopenia).*

Test specificities: EXTEM & INTEM

**EXTEM:**
- extrinsic screening test
- CT not sensitive for heparin (up to 4 U/ml UFH in blood)

**INTEM:**
- intrinsic screening test
- CT sensitive for heparin (UFH)
- CT prolongation from > 0,15 U/ml UFH in blood

**EXTEM & INTEM** amplitude and CFT influenced by:
- fibrinogen
- platelets
Test specificities: FIBTEM

**FIBTEM:**
- activation as in **EXTEM**
- platelet inhibition reagent added

TEMogram shows isolated fibrinogen contribution to Clot firmness

A)  
- **EXTEM:** amplitude low
- **FIBTEM:** amplitude normal

=> fibrinogen level OK
=> platelet deficiency

B)  
- **EXTEM:** amplitude low
- **FIBTEM:** amplitude low

=> fibrinogen deficiency
Test specificities: APTEM

APTEM:
- activation as in EXTEM
- fibrinolysis inhibition with aprotinin

A) • EXTEM: clear hyperfibrinolysis (ML 100%)
   • APTEM: fibrinolysis inhibited (ML <15%)

=> Fulminant hyperfibrinolysis

B) • APTEM:
CT > 10% shorter &
CFT > 20% shorter &
A10 higher than EXTEM
(or 2 out of 3)

=> Consider mild hyperfibrinolysis which will become visible later during measurement
Test specificities: HEPTEM

HEPTEM:
• activation as in INTEM
• heparin inhibition with heparinase

TEMogram identifies heparin effects

A) • INTEM: CT long
• HEPTEM: CT normalised
⇒ Heparin effect

B) • INTEM: CT long
• HEPTEM: CT also long
⇒ No heparin effect
⇒ Factor deficiency
(limited sensitivity to isolated single factor deficiency)
Normal haemostasis with different tests

**EXTEM & INTEM**
- Normal CT
- Normal amplitudes
- No hyperfibrinolysis visible

**FIBTEM**: Amplitude normal

=> fibrinogen level sufficient

&

**EXTEM**: Amplitude normal

=> platelets normal

**APTEM** ≈ **EXTEM**

=> No hyperfibrinolysis